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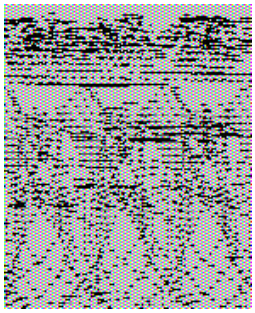

Synchronizing Airpower and Firepower in the Deep Battle

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Foreword

The concept of “deep battle” was formally introduced to US war fighters during the early 1980s through the US Army’s AirLand Battle doctrine. As envisioned by Air Force and Army leaders, the initial purpose for the deep battle was to delay and weaken Soviet second and follow-on echelons during a European conventional war. Within the AirLand Battle construct, the Air Force had responsibility for synchronizing deep operations and for employing air interdiction against Soviet maneuver forces to set the conditions for victory in the decisive “close battle.” The fire support coordination line (FSCL), normally positioned at field artillery maximum range from the forward line of troops (FLOT), separated the Air Force’s deep operations from the Army’s close battle.

During the late 1980s the Army began fielding a potent deep-battle capability of its own. Concurrently, Army doctrine assigned to the ground force commander responsibility for synchronizing deep operations with the close battle. Thus were planted the seeds of conflict with the Air Force over management of the deep battle. To better influence deep operations, the Army defined the FSCL as a permissive fire support coordination measure and also extended the range of the FSCL from the FLOT.

The Persian Gulf War “field tested” US deep-battle doctrine. The joint force air component commander (JFACC) synchronized deep operations using several ad hoc procedures approved by the joint force commander (JFC). By most Air Force accounts, the deep battle was well managed and executed, except for the Army’s use of the FSCL during the last days of the war. Conversely, the Army was thoroughly disappointed with prosecution of the deep battle during Operation Desert Storm. Army frustration arose from the fact that the deep battle was synchronized by the JFACC and not by the ground force commander—a direct violation of joint and Army doctrine.

Joint doctrine produced since the Gulf War has attempted to create a framework for synchronizing airpower and land-based firepower in the deep battle. In spite of that effort, many contentious issues between airmen and soldiers remain

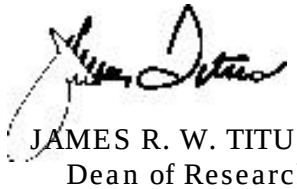
unresolved, chief among them the matter of command relationships on and above the deep battlefield.

In this award-winning study on *Synchronizing Airpower and Firepower in the Deep Battle*, Lt Col R. Kent Laughbaum argues that current joint doctrine does not provide sufficient and acceptable guidance for synchronizing Air Force and Army deep operations. To improve such synchronization, Colonel Laughbaum proposes five modifications to current joint doctrine:

- assign the joint force commander responsibility for establishing and positioning the fire support coordination line;
- redefine the fire support coordination line as a restrictive fire support coordination measure;
- include all planned airpower, firepower, and maneuver operations beyond the fire support coordination line in the air tasking order;
- position the fire support coordination line relatively close to the forward line of own troops, typically no farther than the maximum range of tube artillery; and
- restrict planned air interdiction missions from targets short of the fire support coordination line.

Originally submitted as a thesis for Air University's School of Advanced Airpower Studies (SAAS), *Synchronizing Airpower and Firepower in the Deep Battle* won the 1997 Air Force Armament Museum Foundation Prize as the best SAAS thesis on technology and airpower.

We commend *Synchronizing Airpower and Firepower in the Deep Battle* to all war fighters—airmen and soldiers alike—who are seeking an informed perspective on the hotly contested issue of orchestration of the deep battle.



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Colonel Laughbaum is a graduate of the USAF Fighter Weapons School, the US Army Command and General Staff College at Fort Leavenworth, Kansas, and a 1997 graduate of the School of Advanced Airpower Studies at Maxwell Air Force Base, Alabama. He and his wife, Mary, have two daughters, Christen and Rachel.

Chapter 1

Introduction

> *Modern combat resources allow the attack to be mounted in such a way as to strike the enemy simultaneously over his whole depth and to delay the movement of his reserves to the threatened sector. We now have at our disposal resources like aviation . . . which can make these deep sallies [raids]. In this way the enemy should be pinned down over the entire depth of his dispositions, encircled and destroyed.*
>
> —Mikhail Nikolaevich Tukhachevski
> Marshal of the Soviet Union, 1934

During the 1930s, Soviet military theorists introduced the concept of deep battle. Their objective was to attack the enemy simultaneously throughout the depth of his ground force to induce a catastrophic failure in his defensive system.[1] Soviet deep-battle theory was driven by technological advancements and the hope that maneuver warfare offered opportunities for quick, efficient, and decisive victory. The concurrent development of aviation and armor provided a physical impetus for this doctrinal evolution within the Red Army. Marshal Mikhail N. Tukhachevski stated that airpower should be "employed against targets beyond the range of infantry, artillery, and other arms. For maximum tactical effect aircraft should be employed in mass, concentrated in time and space, against targets of the highest tactical importance."[2]

The United States Army Air Forces (USAAF) captured much of Tukhachevski's intent for airpower in Europe during the last year of World War II. American airmen were not familiar with the term *deep battle*, but they were well acquainted with air interdiction (AI) in support of battlefield operations. AI operations prevented the movement of German armor during the D day invasion and subsequently shaped the battlefield for the Normandy breakout. Gen Dwight D. Eisenhower claimed that it was US airpower's ability to intervene in the land battle that made the Normandy invasion possible.[3] To

ensure close coordination between airpower and ground forces during the subsequent campaign, a tactical air command was paired with each field army. An example was the close relationship between Maj Gen Elwood "Pete" Quesada's IX Tactical Air Command (TAC) and Lt Gen Omar N. Bradley's First Army that developed during the battle for France. The following description of Operation Cobra, the Normandy breakout, draws an excellent illustration of American airpower applied to the battlefield near Saint-Lô:

> On the morning of 25 July waves of American Thunderbolt fighter-bombers swept over the [Panzer Lehr] division, every two minutes, fifty at a time. They dropped high explosive bombs and napalm incendiaries. They were followed by four hundred medium-bombers carrying 500-pound bombs. Then from the north came the sound every German soldier dreaded, the heavy drone of the big bombers—1,500 Flying Fortresses and Liberators. From their swollen bomb-bays 3,300 tons of bombs obliterated almost everything on the ground. Finally the German line, or what was left of it, was pounded by three hundred Lightnings carrying fragmentation bombs and more of the new incendiaries. . . . One survivor remembered that everything shook so much "it was like being at sea in a force 10 gale." [4]

In 1982 the US Army (USA) introduced AirLand Battle doctrine. AirLand Battle was developed specifically to counter the Soviet armor threat facing western Europe. The doctrine's precepts are partly traceable to pre-World War II Soviet military theory. AirLand Battle emphasized the importance of the operational level of war. The new doctrine claimed initiative, agility, synchronization, and depth as tenets. The tenet "depth" led to deep battle's official introduction into USA war-fighting doctrine.

Army Field Manual (FM) 100-5, *Operations* (1993), describes deep battle as "operations designed in depth to secure advantages in later engagements, protect the current close fight, and defeat the enemy more rapidly by denying freedom of action and disrupting or destroying the coherence and tempo of its operations."[5] Historically, the Army has relied on the Air Force to prosecute the deep battle. This was certainly the case when AirLand Battle doctrine was originally published. Regarding deep battle, Gen Donn Starry, USA, claimed "the air commander must concentrate on this task,

for the ground commander hasn't the organic resources either to find or to fire at the second echelon." [6]

Many in the Air Force, especially fighter pilots within TAC and US Air Forces Europe (USAFE), embraced airpower's role in AirLand Battle. Since airpower was solely responsible for executing deep battle when AirLand Battle was introduced, the air commander naturally accepted responsibility for synchronizing deep missions. The fire support coordination line (FSCL), normally set at maximum artillery range, served as an unofficial boundary between Air Force and Army battlefield operations.

The Army began procurement of organic deep-battle weapon systems in the mid-1980s, including the AH-64A Apache and the Army Tactical Missile System (ATACMS). The acquisition of these weapons, and the Army's intention to use them at battlefield depths previously reserved for airpower, generated conflict between airmen and soldiers. The position of the FSCL and the interpretation of its definition were initial sources of debate between the services. Equally divisive was the issue of ultimate authority for synchronizing deep firepower. The Army describes synchronization as

> arranging activities in time and space to mass at the decisive point. Synchronization includes, but is not limited to, the massed effects of combat power at the point of decision. Some of the activities that commanders synchronize in an operation might occur before the decisive moment. They may take place at locations distant from one another. Though separated in time and space, these activities must be well synchronized if their combined effects are to be felt at the decisive time and place. Synchronization seeks to gain overwhelming combat power.
>
> Synchronization usually requires explicit coordination among the various units and activities participating in any operation. In the end, the product of effective synchronization is the maximum use of every resource to make the greatest contribution towards success. [7]

The Air Force claimed that the deep battle was best prosecuted through air interdiction, and that all airpower must be controlled by an air commander. The Army asserted that the deep battle was just a portion of the land battle, and the responsibility for synchronization of the deep battle should reside with the ground force commander.

During the Persian Gulf War these disagreements were apparent during both the planning and execution of the deep battle. The joint force air component commander (JFACC) organized the deep operations during the war and was harshly criticized by US Army leadership for target selection and use of the FSCL. An Army report of Gulf War lessons learned stated that "the lack of commonly understood joint fire support doctrine and the parochial interpretation of fire support coordination measures caused significant problems in fire support coordination."[8]

This paper examines deep battle in US war-fighting doctrine. Chapter 2 traces the development of the Army's AirLand Battle doctrine and historical Air Force perspectives on the deep battle. Additionally, it examines the evolution of the FSCL. Chapter 3 investigates deep battle during the Gulf War, with particular emphasis on targeting and the use of the FSCL. Chapter 4 analyzes service and joint doctrine produced since Operation Desert Storm. After developing the deep-battle requirements and disagreements illuminated in the previous chapters, chapter 4 determines if current joint and service doctrine effectively synchronizes deep operations. In chapter 5, the author makes recommendations to improve US war-fighting doctrine.

The contentious issues between the services surrounding the deep-attack weapon mix are not addressed. The acquisition and balance of weapon systems for the deep battle have already received intense focus within the Department of Defense (DOD) through the Deep Attack Weapons Mix Study (DAWMS) and the Quadrennial Defense Review.

The deep battle is waged in an area where both Air Force and Army firepower can attack the enemy. Ideally, deep operations are synchronized and seamless. The ultimate aim of this paper is to better synchronize the deep battle through superior doctrine. Doctrine must grow, evolve, and mature.[9] According to Joint Publication (JP) 1, *Joint Warfare of the Armed Forces of the United States*, doctrine "provides the distilled insights and wisdom gained from our collective experience with warfare. Doctrine facilitates clear thinking and assists a commander in determining the proper course of action under the circumstances prevailing at the time of

decision."[10] Trust and cooperation are cornerstones of joint doctrine. If our services fail to work together effectively, a tear will appear in our joint fabric. Future adversaries will search for and exploit such weaknesses.

Notes

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6. John L. Romjue, "The Evolution of the AirLand Battle Concept," *Air University Review* 35, no. 4 (May–June 1984): 6. As Training and Doctrine Command commander, General Starry was the senior officer most responsible for the development of AirLand Battle.

7. FM 100-5, 2-8 to 2-9.

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Chapter 2

Evolution of Deep-Battle Doctrine during the Cold War

Gen Creighton Abrams, US Army chief of staff, in his 1973 letter to Gen William E. DePuy, the Training and Doctrine Command (TRADOC) commander, opined that "I have long believed that since there exists in the Army and Air Force a unique complementary relationship to conduct warfare on the landmass, it is absolutely essential that a close relationship exist, at all levels, between the two Services."[1]

Evolution of AirLand Battle Doctrine

As the US military scaled back combat operations in Vietnam from 1970 to 1973, Army leadership was able to devote more attention and resources toward preparing for war in Europe. Although war against the Warsaw Pact was the least likely possibility among the potential armed conflicts around the world, such a war was also the most dangerous in terms of American national survival. The Soviet Union, already at nuclear parity with the United States, was also improving its extremely powerful conventional military forces at a rapid pace. Soviet doctrine, equipment, and training significantly changed emphasis, from a principally defensive focus in 1968 to an offensive orientation by the early 1970s. In the North Atlantic Treaty Organization's (NATO) Central Region, Warsaw Pact ground forces were poised to attack from two echelons in depth, initial and reinforcing. The initial attacking units were expected to attempt to penetrate NATO defenses, while the follow-on echelon forces would exploit the breakthrough. According to the European Command deputy commander in chief (DCINC), the Soviets had a significant advantage in nearly every quantitative measure of military power.[2]

During this time period, the US Army was suffering physically and psychologically. The last years of the Vietnam conflict had been particularly difficult for the Army, which was

burdened with discipline problems, demoralization in the officer corps, a sense of inferiority, and an overall absence in direction.[3]

To address the Soviet conventional threat in Europe, the Army published a new version of FM 100-5 in 1976. It was the Army's capstone war-fighting doctrine document. General DePuy was the driving force behind the creation of the new doctrine. This doctrine, unofficially nicknamed active defense, placed importance on heavy firepower and the massing of forces to win the first battle along the forward edge of the battle area (FEBA).[4] Active defense recognized the reality of fighting outnumbered in Europe. The new doctrine suggested that a Warsaw Pact invasion could be blunted by using terrain as a defense multiplier, employing new antitank weapon technology, and fighting the Soviets as part of a combined effort with the Air Force. When asked how the United States would respond to a massive Soviet conventional attack, General DePuy said that while ground forces rushed to the attack location "we would hope that the US Air Force was working on the second echelon. It is doubtful that the Air Force would eliminate the second or third echelon. It is highly desirable that they do it a lot of damage."[5]

The 1976 publication of FM 100-5 spurred great doctrinal debate within the Army. Critics claimed that active defense overemphasized firepower and attrition and did not focus sufficiently on maneuver warfare. The new doctrine was also viewed by many as defensively oriented, and many believed it should have focused more on winning a war's last battle rather than the first clash.[6] On the other hand, the Air Force found the active defense doctrine mostly satisfactory. The Army's claim that it could "not win the land battle without the Air Force"[7] was perceived by airmen as a clear indication of the Army's desire to fight as a member of a joint team.

General Starry replaced DePuy as commander of TRADOC in 1977. General Starry recognized the apparent weaknesses in active defense and led the effort to produce the 1982 version of FM 100-5. The Army's 1982 capstone doctrine emphasized maneuver warfare as well as the concept of *auftragstaktik*—the ability of battle leaders to act independently as the situation required based on thorough training and an

understanding of their commander's intent. The new FM also introduced the operational-level warfare concept to the American Army. The purpose of operational-level warfare was to conduct "sustained operations designed to defeat an enemy force in a specified space and time with simultaneous and sequential battles."[8] The 1982 publication of FM 100-5 eliminated the active defense doctrine and its apparent emphasis on winning the first battle, replacing it with the superior concept of operational-level combat, offensively oriented towards winning the war.

Crucial to the success of the Army's new doctrine was the requirement to engage successfully Soviet armored forces in depth. A Warsaw Pact combined arms army extended approximately 100 kilometers (km) in depth. Its first echelon divisions, when in contact at the FEBA, ranged to a depth of 30 km. Lead elements from its second echelon divisions were expected to initially locate 50 to 60 km from the FEBA, in position to exploit penetrations created by the first echelon. The second echelon combined arms armies could be found 120 km from the FEBA.[9] FM 100-5 claimed depth as a tenet of Army operational-level warfare.[10] This new doctrine, officially named AirLand Battle, recognized that by delaying, disrupting, and destroying the Soviets in depth, NATO could prevent the Red Army from massing irresistible combat power for the close battle. In other words, attacking the Soviets in depth would wrest the initiative from the enemy and set the conditions for decisive NATO victory in the close battle.

During initial combat operations, Soviet second and follow-on echelon forces were expected to deploy outside the range of NATO ground-based firepower. AirLand Battle doctrine, reflecting its moniker, relied almost exclusively upon the Air Force to prosecute operations in depth. General Starry coined the term *AirLand* to signal the Army's desire for airpower support. According to General Starry, "breaking up the mass and slowing the momentum of second echelon forces is critical to the ground commander fighting the first echelon. *The air commander must concentrate on this task, for the ground commander hasn't the organic resources either to find or to fire at the second echelon*. Forces fighting the first

echelon must have the additional target servicing of aerial firepower to win against a breakthrough. (Emphasis added)"[11]

Despite Air Force capability and intent to fight the deep battle, the Army initiated procurement programs for deep-attack weapon systems during the 1980s. The most notable acquisitions were the AH-64A Apache and the ATACMS. These organic deep-attack weapon systems filled three perceived shortfalls in airpower support provided by the Air Force. Ostensibly, these deficiencies were a slow moving Air Force targeting cycle and the possibilities that insufficient Air Force airpower would be allocated to the deep battle and that the Air Force might select deep-battle targets not synchronized with the ground commander's intent.[12] The first combat ready Apache was delivered in January 1984, and by 1991 the Army had acquired more than 700 airframes.[13] The Apache was designed to fly and fight at night and had a combat radius in excess of 150 km. It was armed with a 30 millimeter (mm) chain gun and a flexible combination of rockets and laser-guided Hellfire missiles.[14] The Apache's most important weapon was the Hellfire, because the missile possessed the capability to destroy all known types of armored vehicles.

The ATACMS was acquired to provide corps field artillery with a weapon system that could range the entire battlefield and outrange any known artillery threat. Two ATACMS missiles could be carried and launched from a multiple launch rocket system (MLRS) vehicle. ATACMS production began in 1990 on an initial purchase of 300 missiles. The first ATACMS variant, Block 1A, delivered 950 M74 antipersonnel/material submunitions and had a 124 km range.[15] Response time for the weapon system was 15 to 60 minutes, and time of flight to maximum range was 5.5 minutes. The warhead was optimized for soft or lightly armored targets such as radars and petroleum storage containers and had no capability against heavily armored targets.[16]

As the Army acquired organic deep-battle weapon systems, its doctrine evolved to synchronize deep attack with the close battle. The 1989 edition of FM 100-15, *Corps Operations*, placed the responsibility for planning, coordinating, and executing deep operations with three organizations located within the corps main command post—the plans cell, the

operations cell, and the fire support cell. Plans cell deep-operations tasks included planning the deep battle, determining high payoff targets, and developing detection and delivery concepts to support deep attack. The current operations cell function was to synchronize the deep battle with close and rear operations. The fire support cell tasks were to ensure adequate fire support for the deep battle, to coordinate tactical air support, and to control all organic deep fires.[17]

The Army's major organization for deep-battle synchronization with the Air Force was the battlefield coordination element (BCE). The BCE was located at the tactical air control center (TACC), and served as the interface between the land component commander and the air component commander. The BCE was tasked to process Army requests for air support, monitor and explain the current ground situation in the TACC, and provide a conduit of information and intelligence between the TACC and the land component headquarters. The BCE was organized for operations involving echelons above corps and was staffed by approximately 30 soldiers.[18]

In summary, AirLand Battle became the Army's operational war-fighting doctrine in 1982 and remained so through the Persian Gulf War. Its genesis was in the assessment that a European conventional war against the Warsaw Pact could not be won through the close battle alone. Instead, a successful war opposite the Soviets demanded deep-attack operations against second and follow-on armored forces—thus setting the conditions for victory in an offensive-minded close battle. AirLand Battle doctrine required joint commitment from the Air Force because the weight of US deep-attack firepower was Air Force airpower. During the late 1980s, the Army began to field a potent organic deep-operations capability by acquiring attack helicopters and long-range, surface-to-surface missiles. Finally, the Army created the BCE to represent the land component commander's interests in the TACC, as well as assist in synchronizing Army-Air Force operations.

Air Force Doctrine and Deep Battle

Basic Air Force doctrine, codified in Air Force Manual (AFM) 1-1, *United States Air Force Basic Doctrine* (1975), remained

relatively stable as the Army developed AirLand Battle. This is not to say that the Air Force was unresponsive to the rising Soviet conventional threat and the Army's efforts to counter the Warsaw Pact. Rather, Air Force basic doctrine essentially remained relevant to all of AirLand Battle's evolutionary phases.

During and after the US involvement in Vietnam, the Air Force leadership was keenly aware of the conventional airpower threat to NATO posed by the Soviet Union and its satellite states. A Senate Armed Services Committee visit to NATO in 1972 reported that all major Air Force officials believed that it would be very difficult to achieve and maintain air superiority during a European conventional war. Air Force leaders had ample reason for concern since Warsaw Pact tactical aircraft outnumbered NATO's 5,000 to 3,000. In addition to numerical superiority, Red combat aircraft were dispersed to numerous airfields and protected in modern concrete shelters.[19]

Air Force leaders were also cognizant of the Warsaw Pact armored menace and made statements regarding methods to defeat a Soviet invasion that were amazingly consistent with future Army doctrine. In 1975 Gen David C. Jones, Air Force chief of staff, stated that "the plan is to use the air in Europe to stop a breakthrough, with very, very limited operations deep in enemy territory or deep strikes for air superiority against his airfields. . . . I am not saying there will not be some of that. But, basically *most of our air would be committed to battlefield support* and battlefield air superiority. (Emphasis added)"[20]

This comment reflected concern with the massive Soviet armored threat. General Jones's statement also indicated a commitment to use intense air interdiction and close air support (CAS) near the battlefield in a defensive effort to blunt an enemy initiative. This focus had much in common with the Army's active defense doctrine that was produced one year later.

The 1975 edition of AFM 1-1 stated that air interdiction operations are conducted to "destroy, neutralize, or delay enemy ground or naval forces before they can be brought to bear against friendly forces. These operations also restrict the combat capability of enemy forces by disrupting their lines of communications and by destroying the supplies that sustain an effective level of enemy activity. Aerospace forces

responsible for air interdiction must be capable of timely response to the requirements for attacking fleeting, point, and area targets, and ranging throughout enemy territory to seek out and destroy these targets."[21]

A sense of frustration with air interdiction's apparent ineffectiveness during the Vietnam conflict motivated Air Force leaders and other US defense officials to examine closely the interdiction mission. A DOD Systems Analysis Office study asserted that interdiction employed near the battlefield was more effective than the classic long-range air interdiction historically accomplished by the Air Force. The study defined battlefield interdiction as air support integrated with ground operations, which has the aim of halting enemy movements and resupply into a given area. The study claimed that during both the Korean and Vietnamese conflicts long-range air interdiction had been a failure. It predicted that long-range interdiction efforts would produce the same results in a major European conflict. In Europe, air interdiction against rear lines of communication (LOC) would be ineffective due to the size and redundancy of the LOC network. According to the Systems Analysis Office, "it would be virtually impossible to disrupt the flow of essential war materiel from rear areas to the front by means of a conventional bombing campaign against railroad centers, bridges, and roads. Systems analysis studies indicated that even if flow capacity could be reduced by as much as 90 percent, the remaining capacity would be enough to reinforce and resupply an 80-division Warsaw Pact force."[22]

Airpower thinkers, in addition to analyzing the appropriate depth for air interdiction, also examined interdiction's target categories and desired effects. AFM 1-1 (1975) listed three air interdiction effects: destroy, neutralize, and delay.[23] Gen Leslie Bray, Air Force director of Doctrine, Concepts, and Objectives, stated in 1972, "interdiction today has come to be identified almost solely with reducing the flow of men and materials. Indeed, if airpower can find and strike enemy forces . . . it might well emerge as a significant and perhaps decisive factor for countering enemy land forces."[24] General Bray believed that air interdiction in support of the battlefield might be more effective if the focus was on the enemy's destruction rather than simply reducing his rate of advance. This

disposition to directly engage the Soviet Army with airpower, which was held by some of the most important leaders in the Air Force, made the AirLand Battle concept an easy sell for the US Army.

In 1973 Gen Robert J. Dixon, TAC commander, initiated a series of joint staff meetings with General DePuy to improve air-land interoperability. General Dixon also recognized the growing Soviet conventional threat to NATO and believed that an Air Force-Army battle team was critical to countering the threat.[25] TAC's relationship with TRADOC was formalized in 1975 with the creation of the Air-Land Forces Applications (ALFA) directorate. ALFA's main purpose was to improve joint capabilities, procedures, and doctrine to win the air-land battle. General DePuy stated that "we are working on the procedures . . . for close air support, air defense suppression, and a lot of other things . . . I submit to you it probably has not ever happened before with the intensity that it has right now. We have a mission to make the joint Air Force-Army team out there as effective as we can."[26]

An important project under the supervision of ALFA was the Joint Second Echelon Interdiction (J-SEI) study. Later known as Joint Attack Second Echelon (J-SAK), the study group was tasked to develop second echelon attack concepts and procedures in 1981. General Starry later used the results from this study to help produce AirLand Battle doctrine.[27]

A clear indication of Air Force interest in fighting the deep battle was the addition of the term *battlefield air interdiction* (BAI) to AFM 1-1, *Functions and Basic Doctrine of the United States Air Force*, in 1979. Also, according to that manual, BAI was not a new mission but a subset of the air interdiction mission. BAI was defined as that portion of the air interdiction mission which may have a direct or near-term effect upon surface operations. BAI required that both the air and land commanders coordinate their operations to ensure effective support.[28]

Some airmen were unhappy with the addition of BAI to Air Force doctrine. The BAI concept generated two basic areas for concern. First, some officers perceived that it created a condition where the ground commander could directly task interdiction missions. One Air Force colonel remarked "our

own doctrine has broken off a piece of the interdiction mission, given it a separate title, and then essentially applied to it the definition of close air support in requiring it to be coordinated with the ground commander's fire and maneuver!"[29] Most airmen believed that if centralized control over airpower was lost, air operations would be severely degraded. Dividing airpower and parceling it to individual ground commanders for targeting would destroy its most important characteristic, flexibility.[30] Gen Wilbur L. Creech, who replaced General Dixon as TAC commander, addressed those officers who had concerns with BAI targeting. He claimed that the Army should have more interest and greater voice in BAI effects, but BAI remained a form of air interdiction and the Air Force was responsible for interdiction targeting.[31] Second, some airmen believed that the term *BAI* was unnecessary, because air interdiction's definition and historic tradition more than adequately encompassed the BAI role. AFM 2-1, *Tactical Air Operations*, stated that "air interdiction operations are conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces."[32]

Regardless of the concerns voiced about BAI, it gained a degree of acceptance within the Air Force, particularly in the Tactical Air Command. In 1980 TAC signed a memorandum of understanding with TRADOC to provide BAI to Army forces,[33] and the 1984 publication of AFM 1-1, *Basic Aerospace Doctrine of the United States Air Force*, included an expanded description of BAI planning and execution.[34] BAI was enthusiastically welcomed by the Army. Nearly all Army field manuals referenced BAI instead of air interdiction when referring to Air Force support of the AirLand Battle.

NATO doctrine also adopted the term BAI. Allied Tactical Publication (ATP) 27, *Offensive Air Support Operations*, defined BAI as air action against hostile surface targets which are in a position to directly affect friendly forces and which require joint planning and coordination. While BAI missions require coordination in joint planning, they may not require continuous coordination during the execution stage. In NATO doctrine, BAI missions did not require positive control but were planned against targets on either side of the FSCL.[35]

This policy was different from Air Force doctrine, which stated that all interdiction missions were flown against targets beyond the FSCL.[36] ATP 27 also combined BAI into a category of missions called offensive air support (OAS). The OAS missions, which included CAS and tactical air reconnaissance, were conducted in direct support of land operations. Under NATO doctrine, control of OAS missions was not centralized under a theater air commander. Instead, these missions were allocated to a regional air commander at the allied tactical air force (ATAF) level. This was significant for two reasons. First, the ATAF commander worked directly for an army group commander, who had far greater influence over air operations and targeting than a ground commander had under US doctrine. Second, many US Army officers cut their teeth in NATO and did not understand that the NATO model for airpower command and control would not be used when the United States went to war outside Europe.[37]

The Air Force, especially TAC and USAFE, embraced its role in the Army's AirLand Battle doctrine. Like their Army peers, Air Force leaders recognized the threat posed by the Warsaw Pact and believed that the air-land team offered opportunities for combat success. Many in the Air Force believed that BAI would be extremely effective, especially in light of long-range interdiction's apparent failure during the Vietnam War. With the establishment of ALFA, the Air Force institutionalized an AirLand Battle partnership with the Army. AirLand doctrine was appealing to airmen for many reasons. High among those reasons was the fact that the deep battle set the conditions for victory, and air interdiction was the primary means for deep attack.

Evolution of the Fire Support Coordination Line

The FSCL, which is a critically important tool for the conduct of the deep battle, has a long and contentious history. Its ancestors were developed during the 1940s, and it has gone through a series of evolutionary changes to keep it relevant to US war-fighting doctrine. Comprehending the

FSCL's record is necessary to understanding the issues that define its use in battle.

The US military entered World War II with extremely limited doctrine to guide the coordination between air attack and ground maneuver forces. The 1940 edition of FM 6-20, *Field Artillery Tactics and Techniques*, designated the division artillery officer as responsible for coordination between the Air Corps and ground forces operating in the division sector. Unfortunately, the manual did not provide any specifics on how to accomplish this task.[38]

A series of fratricide incidents in Normandy during the summer of 1944 demonstrated the requirement for a more sophisticated air-ground deconfliction planning tool. The Eighth Air Force and the Royal Air Force (RAF) Bomber Command were ordered to bomb the German lines to support Operation Cobra. On at least four occasions, Allied heavy bombers attacked their own ground forces.[39] Hundreds of Americans were killed in these incidents, including Lt Gen Leslie McNair.[40] These fratricides can be attributed to several causes, including the orientation of air attacks relative to the army front lines, but one of the most important factors was the inability to coordinate and synchronize airpower and ground maneuver.

The 1948 edition of FM 6-20, *Field Artillery Tactics and Techniques*, incorporated the air-ground coordination lessons learned during World War II into official doctrine. The manual introduced a planning tool called the bomb safety line, which was the direct predecessor to the FSCL. The bomb safety line was established by the ground commander to facilitate air-to-surface engagement of targets while preventing friendly casualties. Attack aircraft could engage the enemy beyond the bomb safety line without immediate coordination with the local ground forces. To assist the pilot, FM 6-20 (1948) directed the ground commander to position the bomb safety line along recognizable terrain. The manual also recommended placing the bomb safety line as close to the forward elements as the situation permitted, thus maximizing airpower's flexibility and potential effectiveness.[41]

The FSCL was established in Army doctrine in 1961, replacing the bomb safety line. The 1961 publication of FM

6-20-1, *Field Artillery Tactics*, defined the FSCL as "a no-fire line between corps and higher echelons and a bomb line for ground and air forces. An FSCL may be established by the corps commander to ensure coordination of those fires delivered by forces not under control of the corps which may affect current tactical operations. When possible, the FSCL should be easy to define on the map and easy to recognize from the air."[42] The FSCL was a dual-purpose coordination tool. Like the now obsolete bomb safety line, it protected friendly troops from air-to-surface fratricide. Additionally, the FSCL required that higher echelons coordinate artillery fire with the corps before employing fire short of the line.

A new edition (published in 1965) of FM 6-20-1, *Field Artillery Tactics*, slightly modified the definition and doctrinal use of the FSCL. Instead of being established by a corps commander, the FSCL was to be established by an appropriate ground commander. Furthermore, the ground commander was required to consult with the tactical air commander and other supporting elements prior to placing the FSCL. Normally the FSCL was placed at the maximum range of the ground commander's organic indirect-fire artillery systems.[43]

In an effort to standardize US Army doctrine with NATO doctrine, the 1967 version of *Field Artillery Tactics* produced some important changes to the FSCL definition. This release of *Field Artillery Tactics* defined the FSCL as "a line which takes the place of the bomb line. It should be established by the appropriate land (normally the corps) commander in consultation with the Tactical Air Commander or his delegate. It is used to coordinate supporting fire by forces not under the control of the appropriate land force commander which may affect tactical operations. The FSCL should be as close to the forward elements as possible, consistent with troop safety and the tactical situation. Furthermore it should be easy to define on a map and easy to identify from the air."[44] This definition of the FSCL emphasized fratricide prevention over managing terrain for ground maneuver or artillery fire support. In this regard, the 1967 FSCL was actually quite similar to its earliest ancestor, the bomb safety line. Another improvement introduced by this new FSCL definition should be noted. By specifying that the FSCL be positioned "as close to the forward

elements as possible," the enemy's potential for engagement by US airpower was maximized.

FSCL doctrine remained stable for 10 years, probably because of the US Army's focus on unconventional warfare in Southeast Asia. The 1977 edition of FM 6-20, *Fire Support in Combined Arms Operations*, defined the FSCL as "a line beyond which all targets may be attacked by any weapon system without endangering friendly troops or requiring additional coordination with the establishing headquarters."[45] During this period the Army's war-fighting doctrine was active defense, which relied heavily upon Air Force close air support. *Fire Support in Combined Arms Operations* stated that the FSCL could be considered a dividing line between planned CAS support and air interdiction missions.[46] Since the 1977 definition did not demand FSCL positioning close to friendly troops, it became standard practice for the Army to establish the coordination measure at maximum artillery range. Normally this distance was 10 to 20 km from the forward line of own troops (FLOT).[47] It is important to note that in this definition the Army considered the FSCL to be a permissive fire support coordination measure (FSCM). The phrase—beyond which all targets may be attacked by any weapon system without . . . coordination with the establishing headquarters—clearly indicates that forward of the FSCL, there were no procedural restrictions to the permissive employment of airpower and firepower. However, since only the Air Force operated weapon systems that could be employed beyond the FSCL, the coordination line actually served as an unofficial battlefield boundary for targeting synchronization between the services.

The final step in the evolution of FSCL doctrine before the Persian Gulf War occurred in 1989. A new definition was produced in JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, and the Army specified additional FSCL guidance in FM 6-20-30, *Fire Support for Corps and Division Operations*. JP 1-02 defined the FSCL as

> a line established by the appropriate ground commander to ensure coordination of fire not under the commander's control but which may affect current tactical operations. The fire support coordination line is used to coordinate fires of air, ground, or sea weapons systems using

> any type of ammunition against surface targets. The fire support coordination line should follow well-defined terrain features. The establishment of the fire support coordination line must be coordinated with the appropriate tactical air commander and other supporting elements. Supporting elements may attack targets forward of the fire support coordination line, without prior coordination with the ground force commander, provided the attack will not produce adverse effects on, or to the rear of the line. Attacks against surface targets behind this line must be coordinated with the appropriate ground force commander.[48]

The fact that joint doctrine required the ground commander to coordinate with his supporting commanders when establishing or moving the FSCL indicates Air Force concern with the line's location. During the previous decade the Army had been using its maximum artillery range to guide FSCL positioning. This was a very satisfactory arrangement for the air commander, who could synchronize operations forward of a relatively shallow coordination line. However, the Army had recently fielded the AH-64A and was preparing to produce the ATACMS. The increased range of these weapon systems, if used to determine FSCL location, would seriously restrict airpower access to the enemy on the battlefield.[49] Though not a joint publication, FM 6-20-30 augmented joint FSCL doctrine to guide the soldier. The field manual stated that "the attack of targets beyond the FSCL by Army assets should be coordinated with supporting tactical air . . . however, the inability to effect this coordination does not preclude the attack of targets beyond the FSCL."[50] This statement, which emphasized the Army's assertion that the FSCL was a permissive coordination measure for targets forward of the line, was troublesome for the Air Force. To airmen it reflected a lack of concern within the Army for surface-to-air fratricide and perhaps an attempt to extend targeting authority into terrain traditionally under the jurisdiction of air commanders.

Synthesis

During the 15 years from 1975—when General DePuy introduced active defense—until 1990 when Saddam Hussein's forces invaded Kuwait, the US Army and Air Force worked together to field a powerful war-fighting team. The Army's

AirLand Battle doctrine symbolized the bond between the two services. AirLand Battle was doctrine for the operational level of war and was designed to defeat the Warsaw Pact in a conventional European conflict. A central aspect of AirLand Battle was the role of deep operations, which were conducted to set the conditions for decisive victory in the close battle. When AirLand Battle doctrine was officially introduced in 1982, the Air Force was solely responsible for planning and executing deep-attack operations. The Army's close battle was completely dependent upon the conditions set by the Air Force in the deep battle—requiring the component commanders to effectively synchronize their operations in time and purpose.

As the Persian Gulf War approached, two issues threatened to disrupt AirLand Battle synchronization. First, the Army and Air Force had different historical and doctrinal interpretations of the FSCL. The Army viewed the FSCL primarily as a permissive fire control measure, while the Air Force saw the FSCL as a means for the prevention of fratricide and a boundary for division of the battlefield. Since the land component commander set the position of the FSCL, often at maximum organic fires range, the Air Force was very concerned about being pushed out of the battle area. The second issue that threatened to disrupt AirLand operations was target selection for the deep battle. As has been the case since the dawn of military aviation, the land commander naturally wants to participate in the airpower targeting and allocation process. The pressure on the land commander to control airpower is especially intense under AirLand Battle doctrine, because airpower prosecutes the AirLand deep battle. These potential problems aside, AirLand Battle doctrine was ready for its first test in January 1991, and hope among airmen and soldiers was high.

Notes

1. Robert J. Dixon, "TAC-TRADOC Dialogue," *Strategic Review* 6, no. 1 (Winter 1978): 46. General Dixon was commander of Tactical Air Command from 1973 until 1978.

2. Robert F. Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1961–1984*, vol. 2 (Maxwell AFB, Ala.: Air University Press, 1989), 347–49, 547–48.

3. Harold R. Winton, "Partnership in Tension: The Army and Air Force between Vietnam and Desert Shield," *Parameters* 26, no. 1 (Spring 1996): 101.

4. John L. Romjue, *American Army Doctrine for the Post-Cold War* (Fort Monroe, Va.: TRADOC Center of Military History, 1997), 16.

5. Futrell, 548–49.

6. William S. Lind, "Some Doctrinal Questions for the United States Army," *Military Review* 57, no. 3 (March 1977): 54–65.

7. FM 100-5, *Operations*, 1976, 1-1.

8. Romjue, 19.

9. FM 100-2-1, *The Soviet Army: Operations and Tactics*, 1984, 4-4 to 4-9.

10. FM 100-5, *Operations*, 1982, 2-1.

11. John L. Romjue, "The Evolution of the AirLand Battle Concept," *Air University Review* 35, no. 4 (May–June 1984): 6.

12. David H. Zook, *The Fire Support Coordination Line: Is It Time to Reconsider Our Doctrine?* (Fort Leavenworth, Kans.: Command and General Staff College, 1992), 75.

13. *Jane's All the World's Aircraft, 1996–97* (Alexandria, Va.: Jane's Information Group, 1997), 661–64.

14. US Third Army, *Deep Operations Standard Operating Procedures* (Fort McPherson, Ga.: Department of the Army, 1 December 1989), C-1.

15. *Jane's Armour and Artillery, 1996–97* (Alexandria, Va.: Jane's Information Group, 1997), 780.

16. *Deep Operations Standard Operating Procedures*, C-2.

17. FM 100-15, *Corps Operations*, 1989, C-1 to C-3.

18. FM 6-20, *Fire Support in the AirLand Battle*, 1988, 2-2.

19. Futrell, 494.

20. Ibid.

21. AFM 1-1, *United States Air Force Basic Doctrine*, 1975, 3-2.

22. Alain C. Enthoven and K. Wayne Smith, *How Much Is Enough? Shaping the Defense Program, 1961–1969* (New York: Harper and Row, 1969), 221–22.

23. AFM 1-1, 1975, 3-2.

24. Futrell, 548.

25. Ibid., 540.

26. Ibid., 542.

27. TAC-TRADOC ALFA, *Air Land Bulletin*, 25 September 1981, 5.

28. AFM 1-1, *Functions and Basic Doctrine of the United States Air Force*, February 1979, 2-13.

29. Robert D. Rasmussen, "The Central Europe Battlefield: Doctrinal Implications for Counterair-Interdiction," *Air University Review* 29, no. 5 (July–August 1978): 11–13.

30. FM 100-20, *Command and Employment of Air Power*, July 1943, 1-2. "The inherent flexibility of airpower is its greatest asset."

31. Futrell, 554.

32. AFM 2-1, *Tactical Air Operations*, 1969, 7-1.

33. John L. Romjue, *From Active Defense to AirLand Battle: The Development of Army Doctrine 1973–1982* (Fort Monroe, Va.: TRADOC Center for Military History, 1984), 62–63.

34. AFM 1-1, *Basic Aerospace Doctrine of the United States Air Force*, 1984, 3-3 to 3-4. According to this manual, air interdiction against targets that are close enough to have a near-term effect on friendly ground forces is called battlefield air interdiction. The manual adds, "the primary difference between battlefield air interdiction and the remainder of the air interdiction effort is the level of interest and emphasis the land commander places on the process of identifying, selecting, and attacking certain targets. Therefore, battlefield air interdiction requires joint coordination at the component level during planning, but once planned, battlefield air interdiction is controlled and executed by the air commander as an integral part of a total air interdiction campaign."

35. NATO Allied Tactical Publication (ATP) 27(B), *Offensive Air Support Operations* (Brussels, Belgium: Military Agency for Standardisation, 1983), 3-2 to 3-3.

36. AFM 2-1, 1969, 7-1.

37. Winton, 110.

38. FM 6-20, *Field Artillery Tactics and Techniques*, 1942, 42.

39. Benjamin Franklin Cooling, ed., *Case Studies in the Development of Close Air Support* (Washington, D.C.: Office of Air Force History, 1990), 271.

40. Russell F. Weigley, *Eisenhower's Lieutenants: The Campaign of France and Germany 1944–1945* (Bloomington, Ind.: Indiana University Press, 1981), 117.

41. FM 6-20, *Field Artillery Tactics and Techniques*, 1948, 95–98.

42. FM 6-20-1, *Field Artillery Tactics*, 1961, 30–31.

43. FM 6-20-1, *Field Artillery Tactics*, 1965, 23.

44. FM 6-20-1, *Field Artillery Tactics*, with Change 1, 1967, 23–24.

45. FM 6-20, *Fire Support in Combined Arms Operations*, 1977, 3–15.

46. Ibid., D-4.

47. Winton, 113.

48. JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, December 1989, 146.

49. Ronald R. Fogleman, "Making the Most of Air Power," *Field Artillery*, September–October 1996, 5.

50. FM 6-20-30, *Fire Support for Corps and Division Operations*, 1989, F-3.

Chapter 3

Deep Battle during the Persian Gulf War

Of all the lessons we learned about tactical air operations, perhaps the most important is that the air commander must have a sincere desire to become part of the ground team. The army must, of course, have the same dedication to reciprocate.

—Lt Gen Elwood "Pete" Quesada
IX Tactical Air Command, 1944

Iraq invaded Kuwait at 0200 hours on 2 August 1990.[1] Its invasion force, which included three armored divisions supported by attack helicopters and fighters, quickly surprised and overwhelmed the Kuwaiti defenders. The Iraqi army captured Kuwait City by noon and reached the Saudi Arabian border early the following morning.[2]

Six days after Iraq's invasion, President George H. Bush announced the US objectives in the Persian Gulf region to counter the Iraqi aggression were to:

- secure the immediate, unconditional, and complete withdrawal of Iraqi forces from Kuwait,
- restore Kuwait's legitimate government,
- assure the security and stability of the Persian Gulf region, and
- protect the lives of American citizens abroad.[3]

During the next four months, the Iraqis deployed forces to increase their combat power in the Kuwaiti theater of operations (KTO). By January 1991, Iraq had positioned 42 divisions within the KTO.[4] The Iraqis arrayed their ground forces in a multitiered defense in depth, somewhat modeled on Soviet doctrine. The first tier included Iraqi Reserve Army infantry divisions, which built an elaborate defensive network containing trenches, minefields, and barbed wire. The second tier consisted of Regular Army armored divisions whose mission was to conduct a mobile defense. Finally, six Republican Guard divisions, three each of armor and infantry,

defined the third tier. The Republican Guard was tasked with counterattacking any Coalition force that penetrated the first two defensive layers.[5]

Thirty-one states formed a Coalition to oppose the Iraqis. The Coalition forces included 1,800 combat aircraft and 540,000 soldiers and marines.[6] Gen H. Norman Schwarzkopf, the Central Command (CENTCOM) commander, served as commander in chief (CINC) for all US forces in theater. Initially, the United States deployed a single corps to the region, the XVIII Airborne Corps, but in early November President Bush decided to send the VII Corps as well. Deploying the VII Corps, which was stationed in Germany, provided General Schwarzkopf with sufficient combat power to cross the Saudi border and forcibly eject the Iraqi army from the KTO.[7]

General Schwarzkopf designated Lt Gen Charles A. Horner as the JFACC. General Horner was responsible for planning and tasking theater air operations based on General Schwarzkopf's apportionment decisions. This responsibility was a Herculean task. By the war's end, more than 3,000 Coalition aircraft of all types were in the theater, flying more than 2,000 missions per day. The JFACC used the air tasking order (ATO) to manage air operations. During Operation Desert Storm, the ATO directed nearly all fixed-wing sorties, the exception being naval aircraft remaining at sea. Helicopters flying at less than 500 feet were also exempted from JFACC control.[8]

The CENTCOM staff developed a four-phase theater campaign plan for Desert Storm. The JFACC managed the first three phases, while General Schwarzkopf directed the final phase. Phase I was a strategic air campaign. US Air Forces Central Command (CENTAF) air planners identified three centers of gravity for targeting during the strategic air campaign: leadership, infrastructure, and military forces.[9] In USAF doctrine, *air superiority* is normally an air campaign's first objective.[10] Efforts to gain and maintain regional air superiority began during the first moments of phase I and continued during the rest of the war. Air planners used strategic attack to shorten the time required to achieve air superiority. Phase II was designed to gain *air supremacy* in

the KTO. This effort included rolling back the Iraqi air defense system thereby establishing a relatively permissive air environment over the KTO. During phase III the JFACC conducted deep operations to prepare the battlefield for the future ground offensive. To prepare the battlefield adequately, General Schwarzkopf tasked the JFACC to significantly attrit the Iraqi fielded forces with airpower. Specifically, 50 percent of the Iraqi armor was ordered to be destroyed or disabled. Finally, phase IV was the ground offensive. The primary objectives of phase IV were to liberate Kuwait and to complete the destruction of the Republican Guard.[11]

This chapter examines deep-battle targeting and application of the FSCL during the Gulf War. Both issues were identified as potential points of friction between the Air Force and Army before Desert Storm. During the war, joint targeting and the FSCL proved to be significant subjects of disagreement between the two services. With regards to targeting, the US Army's after-action report, *Operation Desert Storm Lessons Learned*, stated that "Desert Storm campaign plans highlighted several shortcomings in joint targeting. First, CENTCOM exercised no single targeting authority for lethal and nonlethal fires, resulting in competing priorities between the CENTAF and US Army Forces Central Command (ARCENT) planners. The lack of common priorities between Army and Air component planners led to the perception among ground commanders that the air operation was unresponsive to shaping the battlefield."[12] Interpretation and movement of the FSCL caused as much frustration between airmen and soldiers as did targeting disagreements. After the Army significantly extended FSCL range from the FLOT on the last day of the war, an Air Force officer stated, "The safest place for an Iraqi to be was just behind the FSCL."[13]

Deep-Battle Targeting

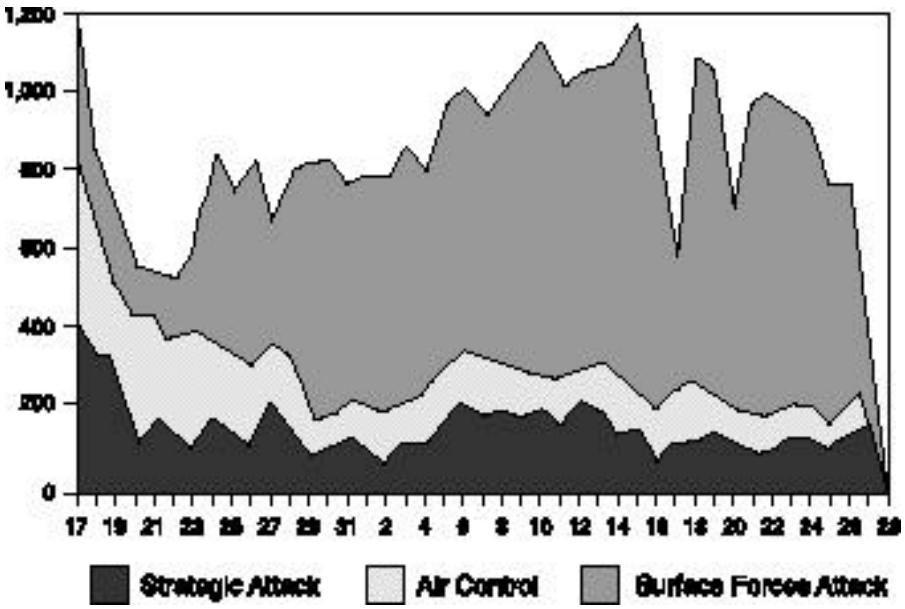
The Coalition launched combat operations on 17 January 1991. At 0238 hours, AH-64s fired the first shots of the war at an early warning radar site in southern Iraq. The JFACCs first objective, air superiority, was achieved within 24 hours.[14] The Coalition prosecuted an intensive air campaign against Iraqi

fielded forces, leadership, weapons of mass destruction, and infrastructure for the next 45 days. Although the CENTCOM staff conceptualized the war in terms of sequential phases, the JFACC initiated the first three phases simultaneously. Airpower attacked strategic, operational, and tactical targets in parallel, so the campaign phases should instead be thought of as priorities of interest. Phase I, the strategic air campaign, was emphasized during the first week of the war. General Schwarzkopf identified the Republican Guard as a strategic target, hence air-land deep battle against fielded forces began almost immediately. More than 700 missions were flown against the Iraqi army during the first seven days of the war. [15] Additionally, strategic attacks against the Iraqi leadership also contributed to the Coalition's efforts to shape the battlefield. The Iraqis had six corps in the KTO but lacked an overall commander in theater. Instead, Saddam maintained centralized control over his forces from Baghdad. Although the effects are difficult to assess accurately, strategic attacks against the Iraqi centralized command and control system degraded Saddam's ability to coordinate military operations in Kuwait and southern Iraq.[16]

General Schwarzkopf shifted the emphasis from strategic attack to battlefield preparation during the second week of air combat. The JFACC tasked 2,800 missions into the KTO during the same week. Airpower's primary focus remained on attacking Iraqi fielded forces in the KTO, especially the Republican Guard, from this time until the end of the war. Figure 1 displays airpower missions devoted to battlefield preparation, air superiority, and strategic attack during Desert Storm.[17]

During the final three weeks of the war, missions against the Iraqi army increased from 3,500 to more than 4,000 per week. In total, 89 percent of all JFACC missions were tasked to support battlefield preparation.[18]

Coalition ground forces attacked at 0100 hours on 24 February 1991. The Coalition's main effort was a single envelopment from the west by the US VII Corps. VII Corps' mission, as restated by the corps commander, was "on order, VII Corps attacks to envelop and penetrate Iraqi defenses and destroy the Republican Guard Forces in zone; be prepared to



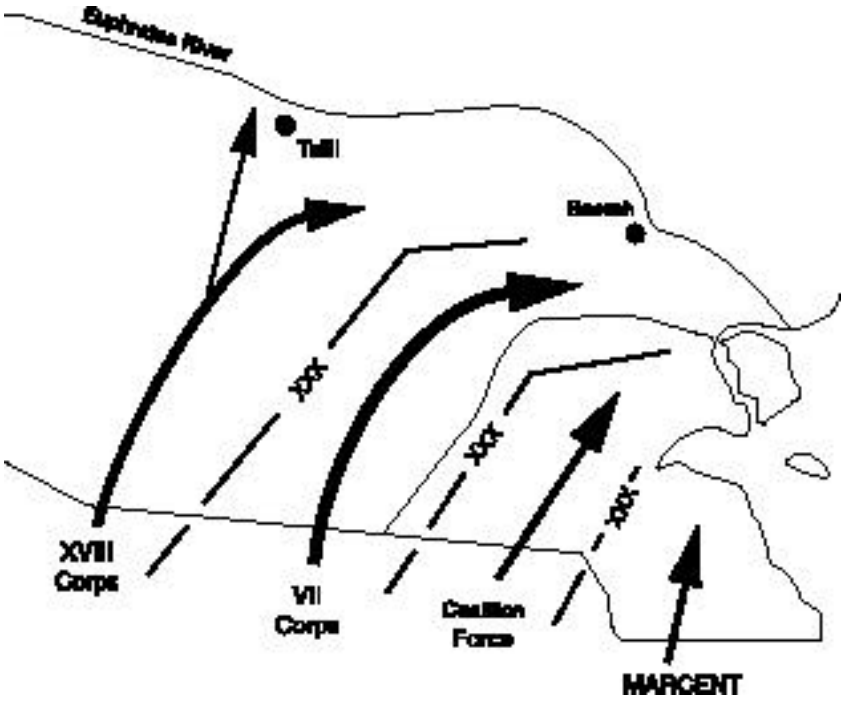
Source: *Gulf War Air Power Survey (GWAPS)*, vol. 2, pt. 2, *Effects and Effectiveness* (Washington, D.C.: Government Printing Office, 1993), 269.

Figure 1. Combat Missions during the Persian Gulf War

defend the northern Kuwait border to prevent [the Iraqis from] re-seizing Kuwait."[19]

The XVIII Airborne Corps was positioned west of VII Corps. The XVIII Corps was ordered to protect the main effort's flank and to attack toward the Euphrates River valley. East of the main effort were the Coalition forces and the US Marine Forces Central Command (MARCENT) divisions. MARCENT, composed primarily of US Marines, attacked north towards Kuwait City.[20] Figure 2 shows the Coalition ground force's multiple axis attack.

During the Gulf War, the US corps commanders and ARCENT leaders made repeated complaints about inadequate battlefield preparation, as well as the JFACC's proper role in the conduct of the deep battle. With regards to battlefield preparation, the Army perceived that the JFACC was not focusing on the needs of the ground force and claimed that he was ignoring the targets they nominated for interdiction. An ARCENT situation report on 18 February stated that "air

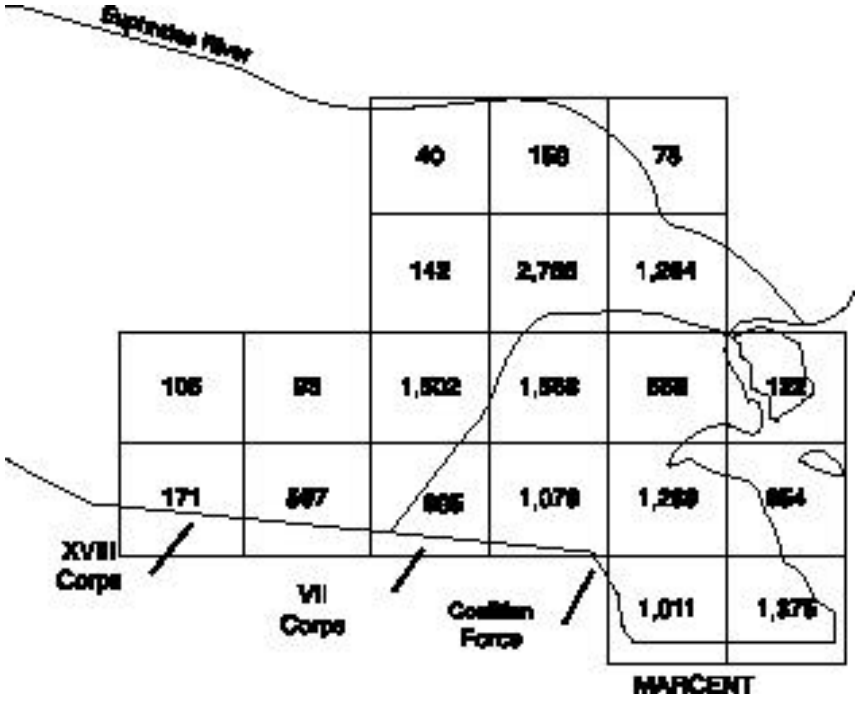


Source: *GWAPS Summary Report*, 9.

Figure 2. Coalition Ground Offensive

support related issues continue to plague the final preparation of combat operations, and raise doubts concerning our ability to shape the battlefield prior to the initiation of the ground campaign. Too few sorties are made available to VII and XVIII Corps. And while air support missions are being flown against 1st echelon enemy divisions, Army nominated targets are not being serviced. Efforts must be taken now to align the objectives of the air and ground campaigns to ensure the success of our future operations."[21] Lt Gen Frederick M. Franks, VII Corps commander, complained that the JFACC attacked only 300 of his 2,000 nominated targets.[22] The field commanders were worried about Iraqi artillery near the front, which in some cases outranged US tube artillery. If the Iraqi artillery was left unchecked, it could cause heavy American casualties during the ground war's initial trench and obstacle breaching operations.

When considering the number and percentage of air interdiction missions targeted against the Iraqi fielded forces, it seems inconceivable that ARCENT and the corps commanders could complain about the JFACC's dedication to battlefield preparation. Figure 3 displays the number of air interdiction missions, per kill box, allocated to battlefield preparation. The field commanders had valid concerns, but the focus of their complaints should not have been on the JFACC. The JFACC was simply following the CINC's guidance.



Source: *GWAPS*, vol. 2, pt. 1.

Figure 3. Air Interdiction Missions Supporting Battlefield Preparation by Kill Box

General Schwarzkopf denied a certain quantity of airpower to the two US Army corps for several reasons. First, a critical component of the ground campaign was the element of surprise. The Iraqis thought the Coalition would attack either north along the coast or by way of the Wadi al-Batin.[23] To surprise the enemy with an envelopment from the far west,

the CINC initially limited the number of interdiction missions in the western KTO. Second, on 12 February, the CINC directed the JFACC not to attack Iraqi divisions that were at less that 50 percent strength. Since nearly all of the Iraqi divisions in the VII and XVIII corps sectors were assessed at less than 50 percent strength with 10 days remaining until the ground war, the JFACC targeted the stronger Iraqi units elsewhere in theater. General Schwarzkopf's highest priority targets in the KTO were the Republican Guard armored divisions. Throughout the entire battlefield preparation phase the Republican Guard divisions were rated at well over 50 percent strength. Consequently, these divisions received a very high percentage of the air interdiction effort.[24] This action made strategic and operational sense, as attriting the Republican Guard ultimately best served the interests of the corps commanders.

Finally, many of the corps' air interdiction nominations were rejected through General Schwarzkopf's target selection process. During Desert Storm, the CINC developed an ad hoc system to review interdiction nominations. Instead of forming a joint targeting coordination board (JTCB) or similar forum to examine corps interdiction requests in a joint environment, all requests were reviewed by Lt Gen Calvin Waller, the CENTCOM DCINC. General Waller accepted approximately 40 interdiction nominations per day from each corps. His staff then reviewed the nominations, judging them for validity and suitability. Many targets were rejected by General Waller because CENTCOM had more timely and accurate target intelligence than was organically available at the corps level. General Waller's staff began this process at 1200 each day, and at 1800 sent the list of targets to the JFACC. General Horner then assigned aircraft to attack each DCINC approved target.[25]

ARCENT and General Franks misidentified the reasons why many of their air interdiction nominations were rejected. The problem was not, as many in the Army assessed, a failure of airmen to support soldiers. As was stated earlier, 89 percent of all JFACC missions were tasked to prepare the battlefield. This fact is a testament to the JFACC's interest in supporting land forces with airpower. The JFACC executed the air

campaign in accordance with the desires of the CINC. Unfortunately, General Schwarzkopf did not notify his corps commanders of his theater priorities for airpower. Moreover, the corps commanders were unaware that it was General Schwarzkopf's staff who re-directed much of the air interdiction effort in the KTO towards targets, such as the Republican Guard, whose destruction best achieved the CINC's operational-level objectives.[26] Therefore, the problem was actually a communications breakdown between the CINC, the ARCENT staff, the corps commanders, and the air component.

There were two systems available through which ARCENT and the corps commanders should have been better informed about the JFACC's air campaign: a JTCB and the BCE. A joint target coordination board creates a forum where the JFACCs can explain their airpower targeting priorities to the component commanders. The JTCB also gives the field commanders an opportunity to express their airpower requirements to the JFACC. Essentially, a JTCB should facilitate communication between airmen and soldiers at the senior command level. General Schwarzkopf chose not to form this type of board. Consequently, the field commanders had no direct contact with the air commander, creating an environment of mistrust. According to the *Gulf War Air Power Survey*, "regardless of the reasons for not establishing a theater command-level target advisory board, the absence of such a board meant that a formal communications channel did not exist for Army corps commanders to express their concerns to the CINC and the JFACC about targeting. . . . Instead, the ground commanders approached Schwarzkopf's deputy, Gen. Calvin Waller."[27] General Waller actually formed a low-level targeting board composed of a Marine lieutenant colonel, an Army captain, and an Air Force captain. This board, although named a JTCB, simply reviewed corps nominated targets in the KTO.[28] Since a command-level targeting coordination board was not formed, there was no effective joint campaign oversight.[29]

Although a senior-level JTCB was not formed during the Gulf War, a battlefield coordination element was established and functioned during the conflict. The BCE, which operated in the TACC, should have kept ARCENT informed of the direction and focus of the air campaign. Besides explaining the current

ground situation to the JFACC, the BCE was tasked to provide a conduit of information and intelligence between the TACC and ARCENT headquarters. The US Army's Desert Storm after-action report stated that communication between the BCE and ARCENT was not effective. This failure to communicate added to the confusion and concern at the VII and XVIII Corps over the direction of the JFACC's effort in the KTO.[30]

General Horner's air effort to prepare the battlefield closely reflected the desires of the CINC. The air campaign was focused at the operational level of war. By almost any measure it was extremely effective. The *Gulf War Air Power Survey* stated that "by creating the conditions under which CENTCOM could redeploy its forces, and by executing an almost ceaseless campaign against enemy forces in the KTO, air power established the conditions under which Coalition ground forces could catch enemy forces by surprise. Airpower destroyed whatever willingness most [Iraqis] might have had to fight the ground battle."[31] The conflicts over targeting and resulting mistrust between soldiers and airmen were primarily a result of communication breakdowns. If the JFACC's purpose in the deep battle was to set the proper conditions for a successful ground force close battle, then Army criticisms of the JFACC's airpower targeting were a result of misperceptions, which is an old issue. In North Africa during 1943, British general Bernard Montgomery's staffs had similar communication and perception problems. General Montgomery observed, "All that is required is that the two staffs, army and air, should work together at the same headquarters in complete harmony, and with complete mutual understanding and confidence."[32]

Fire Support Coordination Line Friction

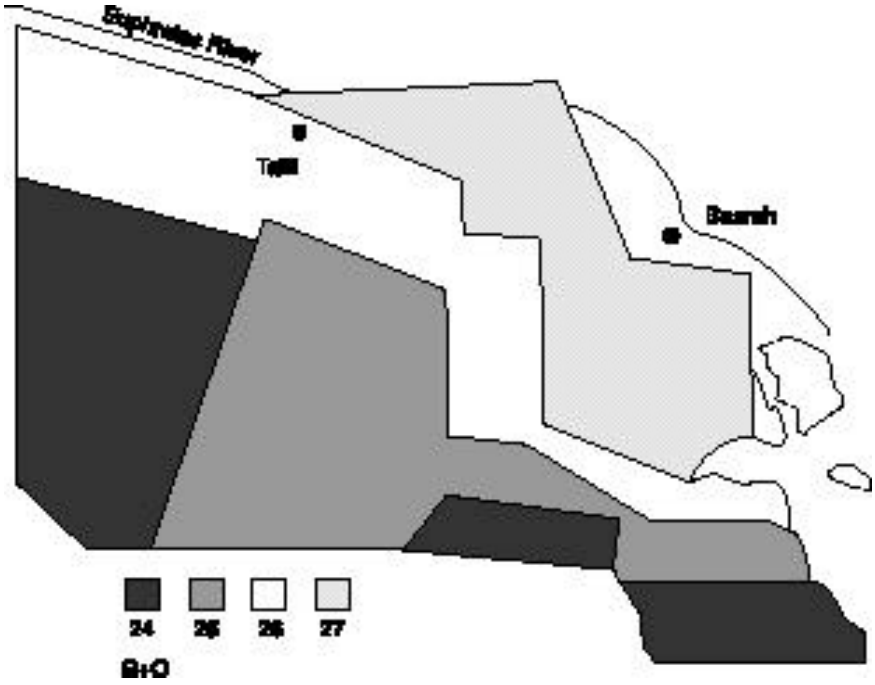
The US military deployed to Southwest Asia with FSCL guidance specified in joint doctrine. However, FSCL use during Desert Storm often did not comply with doctrine, and at critical times disrupted the synchronization of the deep battle. Few issues divided the Air Force and Army more than the application of the FSCL.

During the air war the FSCL was positioned on the Saudi northern border by the CENTCOM staff.[33] This placement maximized the JFACC's ability to shape the battlefield through air interdiction because the JFACC used the FSCL as a dividing line between planned air interdiction and CAS operations.[34] The JFACC accepted the responsibility to synchronize all deep-attack operations during the air war. General Horner stated, "if it's inside the fire support coordination line, don't bother to tell me. If it's [not], put it in the ATO."[35] The FSCL's location and the requirement to coordinate all operations beyond it were troublesome issues for several Army commanders. General Abrams, the VII Corps Artillery commander, claimed that the Air Force was using the FSCL in a restrictive manner, preventing the timely execution of deep fires and attack helicopter operations. Typically, coordination and clearance to fire beyond the FSCL required 30 minutes to two hours. The 1st Cavalry Division Executive Summary made a similar observation: "Fire support measures were not doctrinally applied. The corps FSCL was too restrictive. It [the FSCL] was positioned too close and used more as an RFL [restrictive fire line]. It hindered engagement of targets of opportunity and counterbattery targets. . . . It denied the division commander the ability to direct artillery fires onto his priority targets."[36] The US Army's Desert Storm after-action report also criticized the JFACC's use of the FSCL, claiming joint doctrine clearly described the coordination line as a permissive measure and "in no way establishes territorial jurisdiction for the air component commander."[37]

The JFACC intentionally used the FSCL as a restrictive measure. He did this not only to synchronize deep operations but also to prevent surface-to-air and fighter-to-helicopter fratricide. As was illustrated earlier, the JFACC had reason to use the FSCL in this manner, since historically airmen viewed it as a line between Army operations in the AirLand close battle and Air Force dominated activities in the deep battle. It is important to note that General Schwarzkopf was both joint forces land component commander (JFLCC) and CINC. As JFLCC, he set the FSCL position during the air war. As CINC, he established the battlefield preparation goals to guide the JFACC's air effort.[38] With most Army deep-attack weapon

systems on the sidelines and the JFACC properly shaping the KTO for the future close battle, the CINC approved the coordination requirements deemed necessary by General Horner.

To precisely coordinate fires during the ground offensive, corps planners developed a series of on-order FSCLs, all associated with phase lines. FSCL progression, by day of the ground war, is displayed in Figure 4.



Source: Richard B. H. Lewis, *Desert Storm—JFACC Problems Associated with Battlefield Preparation* (Carlisle Barracks, Pa.: Army War College, 1993), 24.

Figure 4. Fire Support Coordination Line Movements by Day, 1800L

During the opening period of the ground war, each corps set an FSCL location for its sector. This was in contrast to the FSCL established during the air war, which was controlled by the JFLCC. The first FSCL implemented by the VII Corps for its offensive was located 25 km beyond the Saudi northern border. On 24 February the FSCLs progressed at a rate relatively consistent with the advance of the land forces.[39] Corps efforts to shape the battlefield were accomplished

through artillery fires, attack helicopter operations, and dedicated CAS missions. As had been the practice during the air war, the corps were restricted from attacking targets beyond the FSCL unless clearance from the TACC was acquired.[40] The TACC created another type of coordination line that was located 30 km beyond and parallel to the FSCL. This line, since nicknamed the Horner Line, was part of the JFACC's effort to precisely shape the battlefield just beyond the FSCL. Between the FSCL and the Horner Line, air interdiction missions were directed to kill boxes, where a killer scout would assist in targeting. A killer scout was typically an experienced F-16 fighter pilot who was familiar with the enemy disposition in the area. If the ground forces required additional CAS support short of the FSCL, kill box air interdiction missions could easily have been retasked to close air support roles by the airborne battlefield command and control center (ABCCC). This requirement was not necessary because preplanned and push CAS missions fulfilled corps air support requirements.[41] The TACC was very concerned with the risk of air-to-surface fratricide; therefore, it required all Coalition CAS missions short of the FSCL to be executed under the positive control of a forward air controller (FAC). [42]

A primary objective for the ground campaign was the destruction of the Iraqi Republican Guard. On 27 February Army intelligence assets and JSTARS[43] detected indications that the Iraqi army was preparing to retreat from Kuwait. [44] In an effort to prevent the escape of the Iraqis by means of maneuver, firepower, and CAS, the VII and XVIII Corps commanders independently extended the range of the FSCL. These actions had the unintended effect of giving the Iraqis sanctuary from Coalition airpower and ultimately permitted the nearly unimpeded escape of most enemy troops and much of their equipment to Iraq. It is important to examine the specifics and rationale for both of these FSCL movements.

On 27 February Coalition aircraft were attacking Iraqi forces attempting to flee from northeastern Kuwait. At the same time, VII Corps had accomplished its sweeping right turn from north and was attacking to the northeast in sector. General Franks believed that his corps was on the verge of defeating the remaining Iraqi defenses and was preparing to conduct pursuit

operations to complete the envelopment and destruction of the Republican Guard in his sector. Corps leaders, concerned about fratricide and their perceived inability to properly shape the battlefield with organic assets, notified the TACC in Riyadh that the FSCL was to be moved east of the coastal highway leading north from Kuwait City. This action placed the FSCL approximately 80 km beyond the FLOT. General Horner and Brig Gen Buster C. Glosson, whose aircraft were executing massive attacks against the retreating Iraqis, pleaded with General Schwarzkopf to return the FSCL to a position where air and land attacks could be synchronized.[45] General Franks countered the JFACC and persuaded the CINC to maintain the FSCL's coastal location. Fatefully, the VII Corps ground attack stalled. This series of events created a situation where the VII Corps had nothing but CAS to apply in the deep battle. Since it is difficult to achieve a massive quantity of firepower with CAS, a form of sanctuary was created for the Iraqis in northeastern Kuwait, which allowed the Hammurabi and Medina Republican Guard Divisions to escape to Iraq. Col Richard B. H. Lewis, who served as an air campaign planner during the war, called this incident "the number one mistake of the ground campaign."[46]

A similar event occurred on the same day in the XVIII Airborne Corps sector. The Iraqi army, in addition to retreating along the coastal highway from Kuwait City, was also canalized on the Hawr Al Hammar causeway. The causeway passes over a swampy area just south of the Euphrates River. Iraqi forces in column on the causeway presented a perfect opportunity for the mass employment of airpower. Since the Hawr Al Hammar causeway was north of the FSCL, the TACC sent fighters to exploit the circumstances. Lt Gen Gary Luck, the XVIII Airborne Corps commander, was also aware of the situation on the causeway. He tasked the 101st Airborne Division, under the command of Maj Gen Binford Peay, to attack the enemy traveling on the causeway and other roads northeast of Basrah.[47]

To eliminate coordination requirements with the JFACC, General Luck moved the FSCL to a position well to the north of the Euphrates River.[48] Unlike the FSCL controversy in the area north of Kuwait City, this FSCL change was not rationalized by the movement of Coalition ground forces. No Coalition ground

troops were north of the Euphrates, and there were no plans to position them there—Coalition ground forces were still 60 km from Basrah when hostilities ceased. Instead, by moving the line forward, the XVIII Corps staff avoided JFACC control over its 101st Division Apache helicopters, the weapon system selected for the deep operation.[49]

The TACC immediately objected to the FSCL location because it prevented air interdiction missions against the Iraqi armor on the causeway and pontoon bridges over the Euphrates. Col Michael Reavey, director of night operations at TACC, stated that "the Army would attempt to coordinate an FSCL move with us without really thinking through the impact of what that was going to do to our campaign and our ability to support them. . . . The Army was moving the FSCL well out past where they were going to impact on anything it seemed to us, and when they did that they took away airspace and ground area for us to hit."[50] The TACC appealed the FSCL change directly to General Schwarzkopf. After 15 hours the CINC altered the FSCL position to a location south of the Euphrates. During the interim, Coalition airpower was essentially restricted from attacking the causeway and highways north of the Euphrates because no FACs were available. Nearly all of the FACs were concentrated farther south in Kuwait supporting other CAS missions, especially along the coastal highway north of Kuwait City where VII Corps had moved its FSCL.[51] XVIII Airborne Corps ground FACs were also not in a position to provide CAS direct control in the Hawr Al Hammar area because they were located many miles away with the rest of the airborne corps' ground forces.

Without question, the XVIII Airborne Corps decision to extend the FSCL north of the Euphrates River disrupted the synchronization of the deep battle along the Kuwaiti frontier. According to the *Gulf War Air Power Survey*, "the placement of the coordination line [north of the Euphrates] created a zone of diminished effectiveness for air power . . . it is clear that Iraqi forces benefited from the shortcomings of Army/Air Force coordination."[52]

Synthesis and Challenges

To fully grasp the problems associated with FSCL use during the Persian Gulf War, it is important to remember the coordination line's development and the services' interpretations of FSCL and AirLand Battle doctrine. General Horner orchestrated the deep battle—that was the historic role of the air commander under AirLand Battle doctrine. To ensure synchronization of Army organic firepower into the deep battle and to reduce the possibility of surface-to-air fratricide, he used the FSCL in a restrictive fashion. General Horner required that all Army weapons employment beyond the FSCL either be included on the ATO or receive real-time clearance to fire from the TACC.[53] Essentially, the JFACC used the FSCL to delineate a forward boundary for the ground commander's area of responsibility.

The JFACC's application of the FSCL, though completely understandable to airmen, violated joint doctrine. JP 1-02 stated that "supporting elements may attack targets forward of the FSCL without prior coordination with the ground commander, provided the attack will not produce adverse surface effects on, or to the rear of the line."[54] This 1989 guidance demands coordination short of the FSCL, but beyond the line encourages permissive employment of firepower. Additionally, joint doctrine directed the land force commander to coordinate with the air commander before establishing or moving an FSCL, but no provision was made to protect aviators from surface-to-air fratricide.

The JFACC's use of the coordination line frustrated the VII and XVIII Corps commanders as well as their subordinates who were involved in deep operations planning and execution. Army AirLand Battle doctrine placed the responsibility for synchronizing the deep battle with the corps commanders and their staffs.[55] To retain control of their weapon systems during attack operations, both the VII and XVIII Corps commanders chose to radically extend the range of their respective FSCLs.

Joint doctrine did not address a specific range for FSCL placement. The air commander wanted it as close to the FLOT as safety allowed, thus maximizing his unimpeded access to the battlefield. When AirLand Battle doctrine was introduced,

US Army doctrine recommended that the FSCL be used as a boundary between planned CAS and air interdiction.[56] Traditionally, Army ground commanders set it as close as practical to their forward troops, normally 10 to 20 km from the FLOT at maximum organic artillery range. This arrangement both satisfied the air commander and complied with Army doctrinal requirements. However by 1989, the Army no longer planned to keep the FSCL as close as practical to the troops. Instead, corps doctrine advised placing the line beyond the area in which the corps intends to execute deep operations.[57] With the Army's acquisition of long-range organic firepower during the late 1980s, logic suggested the FSCL distance from the FLOT would increase dramatically.

During the Persian Gulf War, FSCL disagreements and targeting concerns between the Air Force and Army were multifaceted. Joint and service doctrine must address these problems. Targeting objections were mostly the result of communication and coordination breakdowns. For example, the lack of a senior-level JTCB prevented the corps commanders from comprehending the intent of General Horner's air campaign plan.[58] Additionally, because there was no JTCB, the JFACC was unable to address adequately the corps commanders' displeasure with unfulfilled air interdiction requests. Finally, the failure of the BCE to keep ARCENT and the corps commanders aware of the airpower focus during battlefield preparation increased frustration and distrust between soldiers and airmen.

FSCL difficulties during the Gulf War were more substantial than communication failures. To synchronize deep operations, the TACC used the FSCL as a boundary and wanted it close to the FLOT. Obviously, airmen are concerned about fratricide short of the line, but they are also uneasy about the fratricide possibilities beyond the FSCL that a permissive interpretation does not adequately address. The Army, in accordance with joint doctrine, believes the FSCL is permissive. Soldiers understand that positioning the FSCL is mission, enemy, troops, terrain and weather, and time (METT-T) dependent,[59] and that the coordination line must be located sufficiently deep to permit unconstrained fire and maneuver.

These disagreements between the Air Force and the Army are serious, but in reality they point to a greater problem—a conflict over who is ultimately responsible for synchronizing the deep battle. During the Gulf War, the JFACC and both corps commanders manipulated the FSCL to synchronize deep operations. As a result, the deep battle lost its coherence and ultimately much of the Iraqi army escaped destruction.

Notes

1. 0200 hours in Kuwait City is 0500 Greenwich mean time.

2. Richard P. Hallion, *Storm over Iraq: Airpower and the Gulf War* (Washington, D.C.: Smithsonian Institution Press, 1992), 133.

3. Edward C. Mann III, *Thunder and Lightning: Desert Storm and the Airpower Debates* (Maxwell AFB, Ala.: Air University Press, 1995), 37.

4. *Gulf War Air Power Survey (GWAPS) Summary Report* (Washington, D.C.: Government Printing Office [GPO], 1993), 8–10.

5. *GWAPS*, vol. 2, pt. 1, *Operations*, 251.

6. *GWAPS Summary Report*, 7.

7. Michael R. Gordon and Bernard E. Trainor, *The Generals' War: The Inside Story of the Conflict in the Gulf* (Boston: Little, Brown and Co., 1995), 157.

8. *GWAPS Summary Report*, 3–6.

9. *GWAPS*, vol. 1, pt. 1, *Planning the Air Campaign*, 149–89.

10. Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, vol. 1, March 1992, 10.

11. *GWAPS*, vol. 1, pt. 1, 149–89.

12. Department of the Army, *Operation Desert Storm Lessons Learned (Tait Report),* vol. 3, *Operational* (Fort Leavenworth, Kans.: Command and General Staff College, 1992), 3-1.

13. *GWAPS*, vol. 2, pt. 1, 259.

14. *GWAPS Summary Report*, 11–12 and 56–57.

15. *GWAPS*, vol. 2, pt. 1, 259 and 268.

16. *GWAPS Summary Report*, 70.

17. *GWAPS*, vol. 2, pt. 1, 265–71.

18. *GWAPS*, vol. 2, pt. 1, *Operations*, 271–89.

19. David H. Zook, *The Fire Support Coordination Line: Is It Time to Reconsider Our Doctrine?* (Fort Leavenworth, Kans.: Command and General Staff College, 1992), 101.

20. *GWAPS*, vol. 2, pt. 1, 295–300.

21. Gordon and Trainor, 330.

22. Richard B. H. Lewis, *Desert Storm—JFACC Problems Associated with Battlefield Preparation* (Carlisle Barracks, Pa.: Army War College, 1993), 29.

23. Gordon and Trainor, 126–27. The Wadi al-Batin is a very wide streambed that parallels the western Kuwaiti border with Iraq. It remains

dry, hard, and flat during most of the year and is an excellent high-speed avenue of attack for armor.

24. Lewis, 33–34.

25. Ibid., 6–7, 30–31.

26. *GWAPS*, vol. 2, pt. 1, 284.

27. *GWAPS*, vol. 1, pt. 1, 63.

28. *GWAPS*, vol. 1, pt. 2, *Command and Control*, 171.

29. *GWAPS*, vol. 1, pt. 1, 63.

30. *Operation Desert Storm Lessons Learned (Tait Report)*, 3-2 to 3-7.

31. *GWAPS*, vol. 2, pt. 1, 326.

32. Bernard L. Montgomery, *High Command in War* (Tripoli, Libya: Mediterranean Expeditionary Force, 1943), 2.

33. *GWAPS*, vol. 2, pt. 2, 232.

34. *GWAPS*, vol. 1, pt. 1, 339. CAS was not required until the ground war began.

35. *GWAPS*, vol. 1, pt. 2, 64.

36. Zook, 114–22. A restrictive fire line is "a line established between converging friendly surface forces that prohibits fires of their effects across that line." JP 3-09 (preliminary coordination), "Doctrine for Joint Fire Support," 1996, GL-7.

37. *Operation Desert Storm Lessons Learned (Tait Report)*, 3-11.

38. *GWAPS Summary Report*, 48–51 and 119.

39. *GWAPS*, vol. 2, pt. 2, 243.

40. Zook, 127–31.

41. Lewis, 23–24.

42. *GWAPS*, vol. 2, pt. 1, 314.

43. JSTARS stands for joint surveillance, target attack radar system. This aircraft, designated E-8C, is a highly modified Boeing 707 used for battlefield target detection, surveillance, and battle management.

44. Zook, 3–4.

45. Buster C. Glosson was General Horner's chief air campaign planner.

46. Lewis, 22–25.

47. Gordon and Trainor, 411–12.

48. Thomas A. Keaney and Eliot A. Cohen, *Revolution in Warfare?* (Annapolis, Md.: Naval Institute Press, 1995), 133–34.

49. *GWAPS*, vol. 2, pt. 1, 257–59 and 315.

50. Gordon and Trainor, 411–12 and 511–12.

51. *GWAPS*, vol. 2, pt. 1, 315.

52. Ibid., 257.

53. *GWAPS*, vol. 1, pt. 2, 64.

54. JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, December 1989, 146.

55. FM 100-15, *Corps Operations*, 1989, C-1 to C-3.

56. FM 6-20, *Fire Support in Combined Arms Operations*, 1977, D-4.

57. FM 6-20-30, *Fire Support for Corps and Division Operations*, 1989, F-3.

58. General Horner executed the air campaign with the complete approval of General Schwarzkopf.

59. METT-T stands for mission, enemy, troops, terrain and weather, and time available. METT-T is a commander's list of factors for consideration when conducting his estimate.

Chapter 4

Deep Battle Today

While serving as the chiefs of staff of their respective services Gen Dennis J. Reimer, USA, and Gen Ronald R. Fogleman, USAF, stated that "we have finally broken the doctrinal logjam."[1] US war-fighting doctrine has steadily matured since the end of the Persian Gulf War. During this period numerous doctrine publications, position papers, and articles have addressed the prosecution of deep battle. The Army produced a new FM 100-5 that eliminated the term *AirLand Battle*. The Air Force initially updated AFM 1-1 in 1992, and then completely replaced it in 1997 with a new capstone publication named Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine*. Via AFDD 1 the Air Force has reemphasized its vision of dominant and decisive air operations. Additionally, the Air Force codified its JFACC concept initially with the printing of the *JFACC Primer* and most recently with publication of AFDD 2, *Organization and Employment of Aerospace Power*. Finally, several joint documents have also been published, some containing very important deep-battle guidance for today's air and land commanders.

Earlier chapters have highlighted two major doctrinal conflicts between soldiers and airmen pertaining to deep operations. First, the services disagree over the definition and application of the fire support coordination line. Second, both the air commander and ground commander claim final responsibility for prosecuting the deep battle. The previous chapters also identified other deep-battle coordination problems, including the proper roles and responsibilities for the JTCB and the battlefield coordination element. This chapter canvasses present Army, Air Force, and joint doctrine for guidance and opinions relevant to deep operations. The purpose of this examination is to determine if today's US war-fighting doctrine adequately addresses these problematic issues and contributes to more effectively synchronizing the deep battle.

Army Doctrinal Evolution since the Persian Gulf War

The Army was thoroughly frustrated with the conduct of deep operations during the Gulf War. This discontent has manifested itself in the composition of several new doctrine manuals. Army doctrine has forcefully accounted for each of the major deep-battle problems identified by soldiers during and after Operation Desert Storm.

In August 1991 General Franks was given the command of TRADOC and subsequently promoted to four-star rank. As TRADOC commander, General Franks was the principal author for the 1993 edition of FM 100-5 and was the driving force behind the Army's doctrine producing tempest.[2]

The new FM 100-5 eliminated the term *AirLand Battle* and replaced it with *Army Operations*. The reasons for this change were both symbolic and concrete. Army leadership believed that the AirLand Battle label, which symbolized a tight Army-Air Force bond, had become too restrictive for a joint environment. The dissolution of the Soviet threat also provided motivation to rename the doctrine. However, the most important reason for the elimination of the term AirLand Battle was the Army's conclusion that organic long-range weapons made soldiers less reliant on the Air Force in the deep-battle arena.[3]

Conceptually, the critical change in FM 100-5 is the Army's vision of depth and simultaneous attack. Under the old AirLand concept, the role of deep battle was to destroy or delay the enemy's reserve and exploitation forces, thereby maintaining favorable force ratios for the close battle. Essentially, deep operations shaped the battlefield to set the conditions for victory in the close battle. That paradigm is broken by today's FM 100-5. The Army's new doctrine uses deep operations to "simultaneously engage enemy forces throughout the depth of the battle area and achieve decisive results rapidly. The purpose of these operations is to deny the enemy freedom of action and to disrupt or destroy the coherence and tempo of his operations."[4] This vision of the battlefield, where the enemy has no sanctuary, closely resembles Marshal Tukhachevski's original intent for deep

battle. "Modern combat resources allow the attack to be mounted in such a way as to strike the enemy *simultaneously over his whole depth* [emphasis added] and to delay the movement of his reserves to the threatened sector. . . . *In this way the enemy should be pinned down over the entire depth of his dispositions, encircled and destroyed* (emphasis in original)."[5] The 1993 FM 100-5 claims that the deep battle may be the commander's main effort, with the close battle in support. Additionally, the doctrine states that on the modern battlefield the lines of distinction between these two battles tend to blur.[6]

During an interview in 1993, General Franks described his concerns with the land force commander's difficulties in synchronizing operations on the battlefield.

> This is the crux of the argument. . . . The land commander is given an area of operations within which he is assigned a mission by the Joint Force Commander (JFC). He does not normally have all other organic assets to accomplish the mission there. When assets that are not organic to him operate in that area, since he has the mission responsibility *he should also determine the priority of what targets are struck, or what functions are struck by those external assets*. . . . What you have emerging is that the Joint Force Air Component Commander will decide, or could decide, through the joint targeting board, priority and numbers of targets struck beyond the fire support coordination line. Now I don't think that is a satisfactory solution. (Emphasis added)[7]

General Franks's assertion that the land commander should synchronize *all* airpower and firepower in his assigned area of operations (AO) is clearly reflected in current Army doctrine. The Army recognizes that in the past airpower was the predominate force in the deep battle; however, "the increasing range and accuracy of projectile, rocket, and missile systems, combined with maneuver and attack capabilities from attack helicopters and light forces, now provide the Army commander with his own organic operational-fires capability. The senior army commander, in supporting the CINC's campaign plan, plans operational fires within his AO. His major role is to synchronize ground and air operational fires in his AO to achieve operational and tactical objectives."[8]

Army FM 100-7, *Decisive Force: The Army in Theater Operations*, assigns the land force commander the overall responsibility for managing interdiction operations within his AO. *Decisive Force* maintains that the senior Army commander

is responsible for orchestrating organic and joint weapons employment to "disrupt, delay, destroy, or degrade enemy operational forces."[9] He is directed to specify target priority, timing, and the desired effects to the supporting commanders. Since the land force commander is the supported commander,[10] FM 100-7 relegates the JFACC to a supporting role for all interdiction in the AO—even beyond the FSCL.

The Army raised serious complaints with the JFACC's restrictive use of the FSCL during the Gulf War. The Army's Desert Storm after-action report stated, "Joint doctrine specifically identifies the FSCL as a permissive measure. During Operation Desert Storm the Air Force required coordination of all fires forward of the FSCL, implying that the portion of the battlefield beyond the FSCL was the Air Force's responsibility. Joint doctrine [states] . . . supporting elements may attack targets forward of the FSCL without prior coordination. . . . This definition in no way restricts fires [beyond the FSCL]."[11] *Decisive Force* reiterates the Army's plans for establishing and using an FSCL. The doctrine manual claims that, as the supported commander in his AO, the land force commander is responsible for assigning any restrictions or constraints for operations beyond the FSCL. The field manual also states that supporting commanders, like the JFACC, must follow the ground commander's guidance for activities beyond the coordination line.[12]

The ground commander uses METT-T factors to determine where the FSCL will be located. He bases his decision largely on the balance between airpower and firepower support. Additionally, the land force commander will place the coordination line deep enough to permit the flexible employment of his maneuver forces.[13] During offensive operations the US Third Army plans to position the FSCL at 80 to 100 km from the forward line of own troops. This standard operating procedure accounts only for the maneuver of friendly armor, not for aviation. When a planned deep operation includes aviation, the FSCL's distance from the FLOT can increase to greater than 150 km.[14] General Luck's deep placement of the FSCL during the last day of the Gulf War provides a model for contemporary Army doctrine and an example for today's land force commanders.

Since Army commanders generally intend to establish the FSCL deep within the area of operations, the coordination line *does not* represent a demarcation between the close and deep battles. Accordingly, CAS missions are expected to contribute to the deep-battle effort. FM 100-7 also claims that air interdiction targets can be located both short and long of the FSCL. "Attack of planned interdiction targets on either side requires no further coordination, assuming the attack is proceeding as planned. Deviation from the plan requires coordination with affected commanders."[15] The statement implies that the ATO will provide sufficient coordination for air interdiction short of the FSCL.

Recently published Army doctrine views the permissive employment of fires beyond the FSCL as both a potential risk and a necessity. Regarding these organic fires, FM 100-7 states they "must be coordinated with all other affected commanders in sufficient time to allow necessary action to avoid friendly casualties. . . . The inability to effect this coordination will not preclude the attack of targets beyond the FSCL." Army doctrine cautions soldiers to consider the increased fratricide dangers that an uncoordinated attack generates, implying that a balance should be achieved between the risk of friendly fire and the benefits of target destruction.[16]

To prosecute the deep battle with organic assets, the Army has significantly increased its weapons capabilities since the Persian Gulf War. The AH-64A fleet, totaling more than 750 airframes, is currently being modified with the Longbow target acquisition and missile system. The modernized helicopter is designated the AH-64D. The Longbow Apache retains all of the AH-64A capabilities. Additionally, Longbow utilizes a millimeter wave (MMW) radar to locate, classify, and target enemy armor and support vehicles. The Longbow Apache can fight at night and in almost any weather, since its radar-guided missile can track targets through smoke and fog. With Longbow, the Apache can engage up to 16 targets simultaneously.[17]

The Army is also improving the ATACMS. The original ATACMS had a 165 km maximum range. Newer missiles have a 300 km range.[18] In addition to increased range, the missile

payload is far more lethal. A new warhead, named Brilliant Submunition (BAT), gives the missile a precision attack ability. BAT incorporates acoustic and infrared sensors to locate targets. Six to 13 BATs can be loaded into each ATACMS.[19]

Both the ATACMS and Longbow Apache are optimized to defeat battlefield vehicles. Example targets include tanks, surface-to-air missile systems, and Scuds. These deep-attack weapon systems have little capability against large, hard targets such as bridges and heavily fortified command posts.

The Army has created a new organization to synchronize the corps' deep battle—the deep operations coordination cell (DOCC). The DOCC is located in the corps main command post. According to FM 100-7, "the primary mission of the DOCC is to provide centralized coordination and management of ARFOR [Army forces headquarters] deep operations. The DOCC ensures effective and efficient employment of critical assets and facilitates synchronization of joint operations." The DOCC's numerous responsibilities include recommending FSCL location, determining high payoff targets, planning deep-attack helicopter operations, coordinating and executing ATACMS fire missions, and creating target nomination lists for air interdiction.[20] The DOCC coordinates with the Air Force through the battlefield coordination detachment (BCD).

The BCE was renamed battlefield coordination detachment after the Gulf War. Following Desert Storm, an Army after-action report criticized the BCE for insufficient staffing and inadequate communications capability.[21] FM 100-13, *Battlefield Coordination Detachment*, was published in 1996 to address these issues and provide doctrine for BCD operations. The BCD is located within the air operations center (AOC)[22] and has the mission to "facilitate the synchronization of joint air operations with Army ground maneuver and fires, to coordinate joint air support, and to facilitate the exchange of operational and intelligence data."[23] The detachment is divided into six functional sections: operations, plans, intelligence, air defense, airspace management, and airlift. The BCD sections liaise directly with their Air Force counterparts within the AOC. The BCD is required to provide a ground picture for the AOC, coordinate Army requests for

airpower, facilitate the exchange of intelligence, deconflict airspace, integrate Army air defense with counterair operations, coordinate airlift support, and provide feedback from AOC to the ground commander.[24]

In summary, through Army doctrine the ground commander has claimed responsibility for synchronizing the deep battle. The main rationale for this claim is the deep-battle's location—inside the ground force commander's area of operations. To better synchronize deep attack, the Army has created a DOCC located in the corps main command post and a more robust battlefield coordination detachment in the AOC. Frustration with the use of the FSCL during the Gulf War motivated the Army to clearly specify its application. The Army claims the FSCL is a permissive coordination measure, and only the ground commander has the authority to position the line and establish restrictions to its use. Finally, the new FM 100-5 has changed the Army's deep-battle concept from shaping the battlefield for the close fight, to "simultaneously engaging enemy forces throughout the depth of the battle area."[25]

Air Force Doctrine since the Persian Gulf War

The Gulf War air campaign validated classic Air Force doctrine. According to Gen Colin L. Powell, "command and control of joint air operations was the best in US military history."[26] The *Gulf War Air Power Survey* describes airpower's effect in the deep battle as "the events on the ground made clear that air power essentially paralyzed or demoralized the Iraqi heavy divisions on which the Iraqi strategy depended. The remnants of some divisions were destroyed in place or surrendered with little resistance; while others fled the theater without much of their equipment."[27] Doctrine produced by the Air Force since 1991 has been built upon the successes enjoyed by airmen and soldiers during the war. It also reaffirms several of airpower's enduring precepts.

Centralized control, flexibility and versatility, and concentration are tenets of airpower. Before examining these tenets in current doctrine, it is worth viewing the airman's perspective in 1943 as noted in FM 100-20, *Command and Employment of*

Air Power, "the inherent flexibility of air power is its greatest asset. This flexibility makes it possible to employ the whole weight of the available air power against selected areas in turn; such concentrated use of the air striking force is a battle-winning factor of the first importance. Control of available air power must be centralized and command must be exercised through the Air Force commander if this inherent flexibility and ability to deliver a decisive blow are to be fully exploited."[28]

AFDD 1 is neoclassic airpower doctrine. Its purpose is to guide Air Force operations with the essential truths discovered 50 years earlier—but later forgotten. Some airpower thinkers in the Air Force were concerned about the "unholy alliance between the TAF [tactical air forces] and the Army."[29] AirLand Battle was Army doctrine and cast airpower in a supporting role. Under certain conditions, this role may have been appropriate, but it eliminated the potential for battle-winning independent air operations.

AFDD 1 effectively argues the merits of centralized control over airpower. "Air and space power must be *controlled by an airman* who maintains a broad strategic and/or theater perspective in prioritizing the use of limited air and space assets to attain the objectives of all US forces in any contingency across the range of operations. The lesson [of the Persian Gulf War] is clear: attempts to fragment the control and planning of air and space power will ultimately cost blood and treasure by diverting effort and impact. Centralized control allows commanders to focus on those priorities that lead to victory."[30]

As JFACC, General Horner enjoyed centralized control over airpower during the Persian Gulf War. Through centralized control he was able to achieve unity of effort for the air campaign and the deep battle. General Horner's initial objectives for airpower were air superiority and strategic paralysis. After air superiority was achieved, he unleashed the Coalition air armada on the Iraqi army. General Horner's ability to shift the air campaign effort from counterair to interdiction demonstrated airpower's inherent flexibility. It was not uncommon for a fighter pilot to execute an offensive counterair mission and then immediately turn to an interdiction or strategic attack sortie. For the deep battle,

airpower's flexibility permitted the airborne battlefield command and control center to shift airborne missions from air interdiction to CAS, and vice versa, as the situation demanded. Airpower's flexibility and versatility make it the only form of military power that can alternately "strike at enemy centers of gravity wherever or whatever those centers might be, . . . destroy enemy forces before they come in contact with friendly forces, . . . and assist directly in surface battles, perhaps with decisive effects."[31]

Centralized control gave General Horner the means to concentrate airpower on the CINC's priorities. General Horner was under great pressure from the corps commanders to release battlefield air interdiction missions for corps tasking. Richard P. Hallion claims that "despite a distribution of targets made by an Army Deputy CINC [General Waller] using lists provided by ground force commanders, and approved overall by an Army theater CINC [General Schwarzkopf], ground commanders still complained that they weren't getting sufficient air support! They continued to demand unnecessary targeting of Iraqi forces and positions directly in front of their sectors."[32] Airpower is most effective when it is concentrated. Centralized control allowed General Horner to execute a coherent campaign where airpower was focused on the operational center of gravity and not consumed on relatively unimportant tactical-level targets.

Current and draft Air Force deep-battle doctrine is a reflection of the Persian Gulf War model. It also has been heavily influenced by Gen Merrill A. McPeak's efforts during the Commission on Roles and Missions. General McPeak was USAF chief of staff during Desert Storm and retired in 1994. He stated that "the close battle should be fought by ground forces (including organic aviation and air defense) under the command of a joint forces land component commander, either USA or United States Marine Corps, depending on who supplies the preponderance of forces. The deep battle should be fought by air forces under command of a joint forces air component commander, either USAF or United States Navy, depending on who provides key force elements and has appropriate C^3I [command, control, communications, and intelligence]."[33] Historically, the Air Force had responsibility

for the deep battle, and during the Gulf War airmen demonstrated high competence in executing and synchronizing deep operations. General McPeak believed that the services should concentrate on missions where they are most effective. Accordingly, the deep battle should belong to the JFACC.[34]

Current Air Force doctrine maintains the FSCL is a boundary between the close and deep battles, and the JFACC has responsibility for synchronizing operations beyond the coordination line. *JFACC Primer* states, "Just as synchronization of all attack assets is critical to the land component commander for all fires inside the FSCL, so it is critical to the air component commander for all attacks beyond the FSCL."[35] According to General Fogleman, the former USAF chief of staff, "the Air Force considers the JFACC as best suited to coordinate operations beyond the FSCL."[36]

Air Force strategists assert that airpower's flexibility and freedom to concentrate is maximized, and the enemy is put at the greatest risk, when the coordination line is positioned relatively close to the FLOT. A close FSCL permits the air commander to decisively concentrate air interdiction on the battlefield and reduces the otherwise time-consuming coordination that CAS procedures require. Airmen remember the Army's use of the FSCL during the Gulf War, and how it prevented airpower from completing the destruction of the escaping Iraqi army. General Fogleman stated, "If the FSCL is established too far out, you slow and reduce air power's access to enemy targets. . . . If the FSCL is so far forward that ground troops don't have the sufficient organic sensors and shooters to cover the targets, then you give the enemy a sanctuary. Air component assets can't attack targets inside the FSCL without tremendous coordination. The last thing we want is to give an enemy sanctuary on the battlefield."[37] The Air Force maintains that the FSCL should be positioned to maximize the effects of airpower and firepower. According to the *JFACC Primer*, "the most reliable way to maximize the enemy's risk is to place the FSCL at the range where artillery and missiles stop being the greatest threat to the enemy and air attack becomes the greatest threat. All operations beyond the range of observed fires should be under the purview of the JFACC."[38] AFDD 2-1.3 (second draft), "Counterland," adds "the proper placement of the FSCL

will normally be at the maximum range of organic artillery and rockets, since beyond that point the 'current tactical situation' is mostly affected by airpower."[39]

The Air Force recognizes the Army's desire to extend the range of the FSCL and argues against such action. Airpower employment short of the FSCL requires detailed integration with surface force operations and therefore is essentially limited to CAS. According to AFDD 1, "CAS should be used at decisive points in a battle and *should normally be massed to apply concentrated combat power* and saturate defenses."[40] CAS assets are normally scarce resources.[41] If the Army extends the range of the FSCL, its finite CAS allocation will be diluted across the battlefield and consequently will lose much of its effectiveness.

Airpower allocated to prosecute the deep battle is primarily air interdiction. The 1992 publication of AFM 1-1 purged all references to BAI, thereby reducing the lingering concerns among airmen over the centralized control of air interdiction on the deep battlefield. AFDD 1 strengthens this position, "joint force interdiction needs the direction of a single commander who can exploit and coordinate all the forces involved, whether air-, space-, surface- or information-based."[42] According to current Air Force doctrine, the JFACC is the supported commander for air interdiction and is responsible for planning, coordinating, and executing the theaterwide interdiction effort.[43] Even more specifically, the Air Force maintains that Army weapon systems performing interdiction missions beyond the FSCL should be synchronized by the JFACC. According to the *JFACC Primer*, "Army aviation assets are normally retained for employment as organic forces. . . . However, some Army helicopters could also be employed in interdiction, in which case they may come under the purview of the JFACC when the JFACC has been tasked to plan and execute the theater interdiction effort. The same can hold true for other systems (such as ATACMS) when employed for interdiction."[44] General Fogleman believed that Army operations beyond the FSCL should be included on the air tasking order. According to General Fogleman, the ATO is the only comprehensive picture of the deep battle and can reduce the possibilities of fratricide and redundant targeting. During the Persian Gulf War, General Horner demanded that Army

operations beyond the FSCL be included on the air tasking order for the same reasons. General Fogleman claimed that ultimately the CINC must decide whether or not the JFACC will control Army deep-battle weapons, but regardless of that decision, the planned use of those weapons must be accounted for in the ATO.[45]

Within the Army's AirLand Battle construct, airpower was boxed into a supporting role. The Air Force has rejected that paradigm. Air Force doctrine asserts that airpower will at times be the CINC's main effort. Moreover, airpower can be independently decisive when making war against enemy fielded forces. AFDD 1 claims that combat operations during the Gulf War have proven "that air and space power now have the potential to be the dominant and, at times, the decisive element of combat in modern warfare. We have also learned, contrary to conventional wisdom, that air and space forces can be supported by surface forces in attaining assigned objectives as well as acting to support them."[46]

In summary, current airpower doctrine for the deep battle is modeled on an extremely successful Gulf War air campaign. Its foundation is quintessential airpower thought. Through centralized control the air commander can concentrate the entire air effort at the decisive point. Centralized control also permits the flexible employment of airpower—the ability to shift the air campaign focus nearly anywhere for any purpose. Contemporary Air Force doctrine assigns the responsibility for synchronizing the deep battle with the JFACC. The air commander plans to use the FSCL as a boundary between his operations and the land component's responsibilities. Air Force leaders want the coordination line positioned relatively close to the FLOT and believe that all operations beyond the FSCL should be included on the ATO. Finally, the JFACC's effort in the deep battle can be the main effort in theater and has the potential to be independently decisive.

Joint Doctrine and the Deep Battle

Air Force and Army deep-battle doctrine appear to be incompatible. Both air and land component commanders claim the ultimate responsibility for synchronizing deep

operations. The air component commander demands centralized control over all airpower assets. As the supported commander for interdiction, the air commander wants a shallow FSCL to demarcate his deep operations from the close battle. He also envisions a restrictive FSCL and synchronizes airpower and firepower beyond the coordination line with the ATO. Army doctrine assigns the responsibility for synchronizing airpower and firepower to ground force commanders, since they are the supported commanders for all operations in their AOs. The ground force commander believes the FSCL is a permissive coordination measure used to unshackle long-range firepower from detailed coordination requirements. The difficult task for joint doctrine is to reconcile these differences.

Joint doctrine is authoritative and by regulation takes precedence over service doctrine. If a conflict between service and joint doctrine arises, joint doctrine must be used unless the chairman of the Joint Chiefs of Staff provides other guidance. Additionally, commanders are required to comply with joint doctrine unless extraordinary conditions exist.[47]

The central principle required to successfully conduct joint operations is unity of effort, which is "common action throughout the joint force in pursuit of common objectives."[48] Unity of effort requires that activities in a combat theater be synchronized. The joint force commander (JFC) is ultimately responsible for ensuring that theater operations are synchronized in time, space, and purpose. Joint doctrine instructs the JFC to designate the forces made available to component commanders and the type of control the component commander will have over those forces. For example, the land force commander normally has tactical control (TACON) over allocated CAS missions. To enhance unity of effort, the JFC has the authority to establish supported and supporting relationships among the respective commanders.[49]

According to JP 3-0, *Doctrine for Joint Operations*, the commander of the supported force has the authority to specify the general direction of the supporting force. General direction is "designation and prioritization of targets or objectives, timing and duration of the supporting action, and other instructions necessary for coordination."[50] The supporting commander is required to determine the needs of the

supported force and take action to meet those needs—assuming immediate capabilities and other JFC assigned tasks in theater permit such action.

The JFC establishes areas of operation throughout the theater to facilitate joint force coordination. Land forces can be assigned areas of operation, which vary in size based on METT-T factors. The areas of operation must be large enough for the land force commanders to accomplish their mission and protect their forces. The JFC is responsible for positioning the rear, lateral, and forward boundaries that define the land component commander's AO.[51]

The land force commander is the supported commander inside his area of operations. The supported commander is "responsible for the synchronization of maneuver, fires, and interdiction . . . within his AO."[52] Joint doctrine directs the land force commander to initially strike interdiction targets with organic firepower. When organic firepower is unable to satisfy the interdiction requirements, the land force commander requests support from the JFACC who is the supporting commander for interdiction in the land commander's area of operations. Joint doctrine instructs land commanders to clearly portray their vision of air interdiction support for maneuver operations. When requesting support, he "designates target priority, effects, and timing of interdiction operations within his AO." However, the land commander should also "provide the supporting commanders as much latitude as possible in the planning and execution of their operations."[53]

JP 3-03, *Doctrine for Joint Interdiction Operations*, states, "The JFACC is the supported commander for the JFC's overall air interdiction effort."[54] Additionally, the JFC will normally delegate to the JFACC the responsibility for planning and executing theaterwide interdiction operations.[55] Joint doctrine describes interdiction as "action to divert, disrupt, delay, or destroy the enemy's surface military potential before it can be used effectively against friendly forces. Joint interdiction operations are those interdiction operations conducted in support of theater wide . . . priorities, or interdiction operations between supported and supporting components."[56] JFACCs typically have operational control (OPCON) over their

assigned and attached forces as well as TACON over other forces made available by the service commanders.[57] Essentially, the JFACC provides centralized *direction* over these interdiction assets that serve two important purposes. First, the air commander generates a unifying effort for the JFC's campaign by personally directing all air interdiction. Second, the JFACC optimizes theaterwide joint interdiction targeting. Efficient and effective interdiction targeting is essential because the demands for interdiction support are almost always greater than available assets.

The air component commander is not assigned a specific area of operation. Since interdiction, counterair, and strategic attack targets may be located anywhere, the JFACC cannot be constrained by land boundaries. Joint doctrine states that air interdiction may constitute the *main effort in theater*. According to JP 3-0, "JFCs may choose to employ interdiction as a principal means to achieve the intended objective, with other components supporting the component leading [JFACC] the interdiction effort."[58] This was the case during phases I, II, and III of the Persian Gulf War.

The JFACC is the supported commander for theater operations outside the land force commander's AO.[59] Joint doctrine directs the JFACC to conduct theater interdiction planning, allocation, coordination, deconfliction, and tasking.[60] The air tasking order is the JFACC's tool for accomplishing these activities. JP 3-56.1, *Command and Control for Joint Air Operations*, states that "targets scheduled for deliberate attack by component direct support air capabilities/forces should be included in the joint ATO, when appropriate, for deconfliction and coordination."[61] This directive, however, does not force the Army into submitting attack aviation mission data for ATO publication because the Army considers attack helicopters a maneuver force, not an air support force.

To provide joint targeting oversight, the JFC may, and normally will, establish a joint target coordination board. The joint force commander can model a JTCB on one of two examples described in joint doctrine. The first example is a target integration center where junior officers deconflict organic and joint interdiction. The second JTCB model is a JFC-level review council. This senior-level targeting board is

normally chaired by the JFC's deputy commander and attended by the air and land component commanders or their immediate subordinates. The JTCB can be tasked to determine general targeting priorities, pass target information, and prepare or refine joint target lists.[62]

Since the JFACC can attack targets anywhere in theater, the JFLCC uses the fire support coordination line to limit fratricide and redundant targeting within his area of operations. The fire support coordination line in joint doctrine is similar to the FSCL described by the Army. The coordination line is established and adjusted by the land commander, who must first discuss the FSCL plans with superior, subordinate, and supporting commanders. JP 3-03 cautions, "the decision on where to place or even use an FSCL requires careful consideration. . . . Establishment of the FSCL too far forward can limit the responsiveness of air interdiction sorties."[63] Airpower employment short of the FSCL, normally CAS allocated to the ground forces, requires detailed synchronization with the land commander's scheme of maneuver. According to JP 3-0, "short of the FSCL, *all fires are controlled* by the land force commander [emphasis added]."[64]

Joint doctrine states that air interdiction may be used to attack targets on *either* side of the coordination line. When air interdiction operations are short of the FSCL, "they must be controlled by the . . . land force commander,"[65] and must receive battlefield threat and target updates through the tactical air control system.[66]

When surface targets are beyond the FSCL, but still within the land component commander's AO, the coordination requirements are less stringent. Air interdiction operations in this region are not under JFLCC tactical control but remain under OPCON to the air commander. To reduce the possibility of fratricide and redundant targeting, the JFACC and JFLCC should coordinate attacks beyond the fire support coordination line. Even so, the FSCL remains permissive in joint doctrine. JP 3-0 states that "in exceptional circumstances the inability to conduct this coordination will not preclude the attack of targets beyond the FSCL."[67]

The Army and Air Force chiefs of staff discussed deep-battle coordination requirements at the 1996 Army-Air Force

Warfighter Conference. The conference was hailed as a watershed event for the resolution of several contentious doctrine issues. Generals Reimer and Fogleman agreed that *all* targets for joint fires, including those inside and outside the land commander's AO, will be coordinated between components to the maximum extent possible. The chiefs of staff also agreed that there will be times when coordination is not possible, thus permissive fires beyond the FSCL remain authorized. According to the war-fighter agreement, the commander executing the uncoordinated mission would accept the responsibility for fratricide incidents that may occur.[68]

Synthesis and Final Analysis

Joint doctrine resolves several of the deep-battle management conflicts between the Army and Air Force. Within the JFLCC's area of operations, the land commander is the supported commander and therefore responsible for synchronizing airpower and firepower. The JFACC is a supporting commander inside the land commander's AO. Outside the land commander's area of operations the JFACC is the supported commander.

Determining the size of the land commander's AO is a critically important task for the joint force commander. Regardless of the JFC's uniform, the JFC must act rationally and without bias when establishing boundaries. A primary objective when placing boundaries is maximizing combat power. Due to increased coordination requirements, a degree of efficiency is lost when component commanders provide support across boundaries—consequently combat power is reduced. The land commanders' area of operations must be *just large enough* to accomplish each mission and protect all forces. If the AO is larger than necessary, the JFACC's access to the deep battlefield is unacceptably impeded. Conversely, if the land commander's area of operations is too small, that mission could be jeopardized and those forces exposed to increased risk.

Joint doctrine mandates coordination between the JFACC and JFLCC. At the command level, the joint target coordination board provides a forum for achieving unity of effort in the deep battle. The Air Force and Army want a

senior-level targeting forum with a macro-view of the campaign, as opposed to a board of junior officers convened to select targets. Beyond the land force commander's area of operation, the JFACC uses the air tasking order to coordinate airpower and firepower. Within the land commander's AO, corps and division deep operations cells plan the deep battle and communicate with the JFACC's air operations center through the battlefield coordination detachment.

Although joint doctrine clearly defines how the battlefield will be divided and demands coordination between the air and land commanders, *it does not provide sufficient and acceptable guidance to synchronize the deep battle*. The core of the problem is fire support coordination line doctrine. FSCL guidance in joint doctrine threatens the JFACC's centralized control over airpower and permits a situation where the joint force commander's combat power is weakened. It also places airmen at unacceptable risk from friendly fire.

The land force commander establishes and positions the FSCL, has tactical control over *all* operations short of the coordination line, and beyond the FSCL also synchronizes operations but does not control supporting forces such as the JFACC's airpower. The temptation to increase the area of tactical control encourages the land component commander to set the fire support coordination line deep within the AO. The land commander is also led to position the FSCL deeply because such an arrangement increases span of control over the battlefield and simultaneously reduces coordination requirements with the JFACC.

Joint doctrine demands detailed integration and coordination of airpower short of the FSCL. Close air support procedures provide the necessary coordination to safely employ airpower short of the FSCL—assuming the coordination line is relatively close to the FLOT or that an airborne forward air controller is available. If the coordination line is positioned at a great distance from the FLOT and only a ground FAC is available, it is nearly impossible to provide the detailed integration required for close air support. Moreover, a deep FSCL dilutes the land commander's finite quantity of allocated CAS sorties. Spreading limited CAS assets across the depth of the AO

inhibits employment in mass and makes the CAS effort far less effective.

Joint doctrine states that air interdiction may be flown short of the fire support coordination line. Essentially, this provision gives tactical control of air interdiction to the ground commander—a situation that is completely unacceptable to airmen. If the JFACC abdicates centralized control over air interdiction, airpower's flexibility is diminished. Additionally, air interdiction executed short of the FSCL demands the same burdensome coordination as required for CAS. Air interdiction operations do not easily lend themselves to detailed coordination and integration with ground forces, thus greatly increasing the probability of air-to-surface fratricide.

Airpower and firepower beyond the FSCL should be coordinated to the maximum extent possible. However, joint doctrine permits noncoordinated attacks under exceptional conditions—generating a situation where the risk of fratricide is balanced against the possibility of destroying a target. Allowing permissive fires beyond the coordination line creates a slippery slope, thus leading to a point where the chances of surface-to-air fratricide increase dramatically when airpower and firepower are not synchronized.

Each of these issues adversely affects the joint force commander's ability to effectively conduct deep operations. Chapter 5 provides several recommendations that address these problems and hopefully will improve the synchronization of airpower and firepower in the deep battle.

Notes

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57. JP 3-56.1, *Command and Control for Joint Air Operations*, November 1994, II-2.
58. JP 3-0, III-33 and IV-14.
59. Message, 191947Z DEC 96.
60. JP 3-03, xi.
61. JP 3-56.1, IV-3.
62. Ibid., IV-2.
63. JP 3-03, II-15.
64. JP 3-0, xiii.
65. JP 3-03, ix.
66. Ibid., II-15.
67. JP 3-0, III-34.
68. Message, 191947Z DEC 96.

Chapter 5

Conclusion

On 12 November 1945, Henry “Hap” Arnold, United States Army Air Forces commanding general, stated in his last report to the secretary of war that “the greatest lesson of this war has been the extent to which air, land, and sea operations can and must be coordinated by joint planning and unified command. The attainment of better coordination and balance than now exist between services is an essential of national security.” [1]

Deep battle was formally introduced into US war-fighting doctrine during the early 1980s. The initial purpose for the deep battle was to delay and weaken Soviet second and follow-on echelons during a European conventional war. The Air Force had the unofficial and singular responsibility for synchronizing deep operations and planned to employ air interdiction against Soviet maneuver forces to set the conditions for victory in the decisive close battle. The fire support coordination line, normally positioned at field artillery’s maximum range from the FLOT, separated the Air Force’s deep operations from the Army’s close battle.

During the late 1980s, the Army fielded a potent deep-battle capability. Army organic firepower and attack aviation provided the land component commander the ability to prosecute the deep battle in concert with the Air Force, or independently if necessary. Army doctrine assigned the ground forces commander the responsibility for synchronizing deep operations with the close battle—germinating the seeds of conflict with the Air Force over deep-battle management. To better influence deep operations, the Army defined the FSCL as a permissive fire support coordination measure and also extended the range of FSCL from the FLOT.

During the Persian Gulf War, General Horner synchronized deep operations. To manage the deep battle, he used several ad hoc procedures—all approved by General Schwarzkopf. General Horner employed a restrictive FSCL, requiring all planned airpower, firepower, and maneuver operations beyond the fire support coordination line to be included on the air tasking

order. General Horner's restrictive FSCL facilitated a coherent deep-battle plan, minimized redundant targeting, and eliminated surface-to-air fratricide. By most accounts, Coalition efforts in the deep battle were extremely successful. There were two exceptions. During the last day of the war the VII and XVIII Corps commanders significantly extended the range of their respective FSCLs and consequently prevented the JFACC from attacking the Iraqi Republican Guard. Unfortunately, the corps commanders were then unable to mass combat power against the Iraqis. These events created a form of sanctuary on the battlefield for the most important elements of the Iraqi army—ultimately leading to the enemy's successful retreat into Iraq.

Joint doctrine produced since the Gulf War attempts to create a framework to synchronize airpower and firepower in the deep battle. Several contentious issues surrounding the deep battle have been resolved—especially regarding command relationships and forums for communication between the various component commanders. Unfortunately, current joint doctrine does not provide sufficient and acceptable guidance to synchronize Air Force and Army deep operations. This study's final chapter presents five recommendations to change joint doctrine, thereby improving the joint force commander's capability to engage the enemy simultaneously throughout the depth of the battlefield.

- Assign the joint force commander the responsibility for establishing and positioning the fire support coordination line.

Currently, the ground force commander positions the fire support coordination line. Joint doctrine requires that the commander consult with superior, subordinate, and supporting commanders before placing the FSCL. The ground force commander is strongly tempted to establish a deep FSCL—under certain conditions greater than 150 km from the FLOT. A distant FSCL increases the ground force commander's span of tactical control over the battlefield and reduces the coordination requirements with the JFACC.

Airmen prefer to have the fire support coordination line positioned near the close battle. An FSCL located near the

FLOT maximizes airpower's flexibility and places the enemy at the greatest risk from air attack. This is because *all* air operations short of the FSCL require detailed integration with ground firepower and maneuver forces, while air interdiction missions beyond the FSCL do not demand the same exacting degree of coordination.

Obviously, the Air Force and Army are in direct conflict regarding the proper depth of the coordination line. Airmen and soldiers can make seemingly rational arguments to support their mutually exclusive views. However, since the ground force commander ultimately positions the FSCL, the argument will go in the ground force commander's favor—unless the joint force commander intervenes as General Schwarzkopf did during the Desert Storm air war.

Joint doctrine *must* be changed to designate the JFC with the responsibility for establishing and repositioning the fire support coordination line. The JFC is accountable for the aggregate performance of the joint command and should not be influenced by service politics. This fact compels the joint force commander to make a rational judgment when positioning the FSCL, primarily basing the decision on maximizing relative combat power for the deep battle.

- Redefine the fire support coordination line as a restrictive fire support coordination measure.

Joint doctrine defines the FSCL as a permissive FSCM. Currently, airpower and firepower missions beyond the FSCL *should* be coordinated through the air and land component staffs. However, "in exceptional circumstances the inability to conduct this coordination will not preclude the attack of targets beyond the FSCL."[2] The Army strongly endorses joint doctrine's permissive definition of the fire support coordination line.

The Air Force, on the other hand, is unhappy with a permissive FSCL. Airmen point to the considerable efforts made to reduce the likelihood of air-to-surface fratricide short of the coordination line and want the same emphasis placed on eliminating surface-to-air friendly fire beyond the FSCL. The Air Force finds it disconcerting that soldiers, when executing permissive fires, essentially balance the risk of surface-to-air fratricide against the possibility of destroying a

target. Not only do such uncoordinated attacks increase the probability of surface-to-air fratricide but they also invite redundant targeting.

Joint doctrine should redefine the FSCL as a *restrictive* fire support coordination measure, forcing the air and land component staffs to coordinate *all* operations beyond the FSCL. During the Persian Gulf War, General Schwarzkopf defined the coordination line as a restrictive FSCM. Although the Army complained about the FSCL's restrictive nature during and after the war, it contributed to safety and combat efficiency and did not significantly inhibit or delay operations. Recent improvements in communications and computer technology make the achievement of this recommendation a relatively simple task. The air and land component staffs already coordinate internal operations—all that remains is the fusion of data between airmen and soldiers. This proposal will reduce the likelihood of friendly fire incidents and largely eliminate redundant targeting. Additionally, the JFACC will acquire a more accurate picture of the land component commander's deep-battle planning and execution—facilitating more effective, efficient, and timely airpower support.

- Include all planned airpower, firepower, and maneuver operations beyond the fire support coordination line on the air tasking order.

According to joint doctrine, the land force commander is the supported commander "responsible for the synchronization of maneuver, fires, and interdiction . . . within his AO."[3] Although he has the authority to specify the *general* direction of the supporting force, the land commander should also "provide the supporting commanders as much latitude as possible in the planning and execution of their operations."[4]

This recommendation does not challenge the ground commander's authority to specify the general direction of airpower and firepower within his AO. Instead, this proposal suggests that planned airpower, firepower, and maneuver operations beyond the FSCL can best be deconflicted using the air tasking order. According to General Fogleman, "a comprehensive ATO is the *only* document coming out of the

targeting process that shows the total target servicing plan in time and space for the deep battle."[5]

Central Command currently uses the ATO to coordinate operations beyond the FSCL. According to US CENTAF *Concept of Operations for Command and Control of Air Operations* (U), "preplanned JFLCC fires/operations beyond the FSCL will be deconflicted in the ATO construction process. Conflicts will be brought to the attention of the JFLCC who will determine how the conflict is to be resolved."[6] These CENTCOM procedures provide an excellent framework for the development of future joint doctrine.

- Position the fire support coordination line relatively close to the forward line of own troops, typically no farther than tube artillery's maximum range.

Joint doctrine does not recommend a specific distance from the FLOT for FSCL placement—and it should not. The joint force commander must consider METT-T factors when positioning the FSCL. Ideally, the coordination line's location should place the enemy at the greatest possible risk from US airpower and firepower. It should also be located sufficiently deep to ensure the ground forces commander has the necessary terrain to maneuver and protect the forces.

A relatively shallow FSCL, positioned approximately at the maximum range of tube artillery, will place the enemy at the greatest total risk in most situations. This shallow FSCL will give the air commander the ability to mass airpower for the deep battle. Moreover, the ground commander will not be burdened with excessive coordination requirements when the coordination line is positioned at tube artillery's maximum range. Only the ground commander's firepower and maneuver operations beyond the FSCL, essentially ATACMS and attack helicopter missions, will require detailed coordination with the JFACC.

- Restrict planned air interdiction missions to targets beyond the fire support coordination line.

Current joint doctrine states that AI may be flown against targets short of the fire support coordination line. This provision essentially gives tactical control over a portion of the AI effort to the ground commander—a situation that is

unacceptable to airmen. The air component commander must maintain centralized control over all AI operations. Allocating "small packets" of air interdiction to the ground commanders for targeting will diminish airpower's flexibility and effectiveness.[7] This important truth, discovered through a bitter US defeat in the North African desert during World War II, must not be forgotten.

Additionally, AI operations short of the coordination line demand the same burdensome coordination and control as required for CAS. According to JP 3-03, "control of air-to-surface operations short of the FSCL requires detailed synchronization, increased communications assets, more restrictive rules of engagement, positive identification procedures, and more key personnel involved in the decision cycle than for those missions conducted beyond the FSCL."[8] As previously described, AI operations do not readily lend themselves to such detailed coordination and integration with ground forces. Air interdiction missions executed against targets short of the FSCL are far more likely than CAS to result in air-to-surface fratricide.

During the Persian Gulf War, Generals Schwarzkopf and Horner recognized the necessity of restricting AI operations to targets located beyond the FSCL. General Schwarzkopf's CAS allocation, when coupled with a reasonably positioned FSCL, more than fulfilled the ground commander's airpower requirements for targets short of the coordination line. Today, the US Central Command has formally adopted the AI procedures established by the two generals.[9] Future joint doctrine should also restrict planned air interdiction missions to targets beyond the coordination line.

This paper has examined US deep-battle doctrine. The deep battle is fought in an area where both Air Force airpower and Army firepower can attack the enemy. Ideally, deep operations are synchronized and seamless. The Persian Gulf War demonstrated that Army, Air Force and joint doctrine for the deep battle require improvement. To better synchronize airpower and firepower in the deep battle, the author recommends five changes for joint doctrine.

Successful application of these recommendations for the deep battle will demand that airmen and soldiers trust each other.

Ultimately, cooperation and trust are cornerstones of joint doctrine and the basis for decisive combat operations on and above the deep battlefield. Gen John M. Shalikashvili's vision for joint operations, as stated in *Joint Vision 2010*, is focused exactly on target: "The nature of modern warfare demands that we fight as a joint team. This was important yesterday, it is essential today, and will be even more imperative tomorrow."[10]

Notes

1. Robert F. Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1907–1960*, vol. 1 (Maxwell AFB, Ala.: Air University Press, 1971), 192.

2. JP 3-0, *Doctrine for Joint Operations*, February 1995, III-34.

3. Ibid., ix and IV-15.

4. Ibid.

5. Ronald R. Fogleman, "Making the Most of Air Power," *Field Artillery*, September–October 1996, 3.

6. US CENTAF/JFACC, *Concept of Operations for Command and Control of Air Operations* (U), Shaw AFB, S.C.: US CENTAF/DO, January 1996, 11. (Secret restricted fire line [REL] MNF) Information extracted is unclassified.

7. Bernard L. Montgomery, *High Command in War* (Tripoli, Libya: Mediterranean Expeditionary Force, 1943), 2. After finally achieving victory over German forces in North Africa, the British general reflected on the proper use of airpower in war. In *High Command in War*, General Montgomery observed,

> Any officer who aspires to hold high command in war must understand clearly certain basic principles regarding the use of air power. The greatest asset of air power is its flexibility, and this enables it to be switched quickly from one objective to another in the theatre of operations. So long as this is realised, then the whole weight of the available air power can be used in selected areas in turn; this concentrated use of the air striking forces is a battle-winning factor of the first importance. It follows that control of the available air power must be centralised, and command must be exercised through RAF [Royal Air Force] channels. *Nothing could be more fatal to successful results than to dissipate the air resources into small packets placed under command of army formation commanders, with each packet working on its own plan.* The soldier must not expect, or wish, to exercise direct command over air striking forces [emphasis added].

8. JP 3-03, *Doctrine for Joint Interdiction Operations*, April 1997, II-15.

9. US CENTAF/JFACC, 9–11.

10. *Joint Vision 2010*, "America's Military: Preparing for Tomorrow," 1996.

Glossary

ABCCC	airborne battlefield command and control center
AFDD	Air Force doctrine document
AH	attack helicopter
AI	air interdiction
ALFA	Air-Land Forces Applications (directorate)
AO	area of operations
AOC	air operations center
ARCENT	US Army Forces Central Command
ARFOR	US Army forces
ATACMS	Army Tactical Missile System
ATAF	allied tactical air force
ATO	air tasking order
ATP	Allied Tactical Publication
BAI	battlefield air interdiction
BAT	Brilliant Submunition
BCD	battlefield coordination detachment
BCE	battlefield coordination element
CAS	close air support
CENTAF	US Air Forces Central Command
CENTCOM	Central Command
CINC	commander in chief
DAWMS	Deep Attack Weapons Mix Study
DCINC	deputy commander in chief
DOCC	deep operations coordination cell
FAC	forward air controller
FEBA	forward edge of the battle area
FLOT	forward line of own troops
FSCL	fire support coordination line
FSCM	fire support coordination measure
JFACC	joint force air component commander
JFC	joint force commander
JFLCC	joint force land component commander
JP	joint publication

J-SAK	Joint Attack Second Echelon
J-SEI	Joint Second Echelon Interdiction (study)
JTCB	joint targeting coordination board
KTO	Kuwaiti theater of operations
LOC	lines of communication
MARCENT	US Marine Forces Central Command
METT-T	mission, enemy, troops, terrain and weather, and time
MLRS	multiple launch rocket system
MMW	millimeter wave
NATO	North Atlantic Treaty Organization
OAS	offensive air support
OPCON	operational control
RAF	Royal Air Force
RFL	restricted fire line
TAC	Tactical Air Command
TACC	tactical air control center
TACON	tactical control
TRADOC	Training and Doctrine Command
USAAF	US Army Air Forces
USAFE	US Air Forces Europe

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